The Treatment of Rheumatic Infection

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VERITATEM PER MEDICINAM QUÆRAMUS

J. Sinclair Tait. M.D.

STREPTOCOCCUS RHEUMATICUS (POYNTON & PAYNE).

PURE CULTURE.

MAGNIFICATION 1200 DIAMETERS. Objective, Zeiss Apochromatic 1.3 N.A., 3 MM.; Eyepiece, Compensating No. 8; Condenser, Aplanatic 1.4 N. A., Leitz.

THE TREATMENT

of

RHEUMATIC INFECTIONS

Press of

PARKE, DAVIS & COMPANY

1913

PHYLACOGENS.*

GENERAL DESCRIPTION.

Since 1910 much interest has been excited in medical circles by the reports of the extraordinary results following the use of a new form of bacterial derivative in the treatment of acute and chronic infections. This derivative was originated by Dr. A. F. Schafer, of Bakersfield, California, who first presented his discovery to the profession through the San Joaquin Medical Society, at Fresno, California, in October, 1910, and later through the San Francisco Medical Society on January 14, 1911. Dr. Schafer's preliminary paper was published in the *Therapeutic Gazette* for April, 1911.

Parke, Davis & Company, before undertaking the manufacture of Phylacogens, first made a searching and critical investigation of all the circumstances surrounding the work in California. Several competent attachés of our scientific departments personally called on physicians and visited the hospitals in which the cases were treated, and witnessed the unique results obtained in a large number of them. The preparation of the Phylacogens was then begun (1911) in the Parke, Davis & Company Biological Laboratories in Detroit. At first this work was done under the personal supervision of Dr. Schafer, and later in accordance with his written instructions.

THEORY: THE VIEWS OF DR. SCHAFER.

The principle upon which the use of these Phylacogens is founded is, briefly, the theory of multiple infections. The principle is supported by an extraordinary practical experience, supplemented by exhaustive and long-continued laboratory and clinical experimental work by Dr. Schafer.

Three facts are set forth by Dr. Schafer as the basis of this new therapy:

First: Practically all acute and many of the chronic diseases are caused by the metabolic products of pathogenic bacteria.

Second: The human subject is the host of microörganisms that are pathologically latent, but capable of setting up a disease process under certain conditions.

Third: The growth of infecting microörganisms can be arrested and their effects neutralized by products derived from their development in artificial culture media.

Dr. Schafer is of the belief that all infections are "mixed infections;" that, except in rare instances, there is no such thing as an infection by a single species of microörganism; that while one species may predomi-

*The word "Phylacogens" distinguishes the modified bacterial derivatives manufactured by Parke, Davis & Co., according to the process of Dr. A. F. Schafer.

nate, the pathogenic process engendered by it is accelerated and intensified by the presence of organisms of other species; in other words, that in the course of an infectious disease the symptoms are due not only to the effects of a single species of organism (the specific infection), but to the influence of other organisms whose pathologic rôle is not insignificant, but which must be reckoned with in any successful scheme of therapeutics.

It is Dr. Schafer's opinion that the great variety of microörganisms, harbored by the human organism without harm to itself during periods of physiological resistance at or above par and in the absence of any solution of tissue continuity, assume pathological significance when the resistance falls below par or when a solution of tissue continuity occurs; furthermore, that certain diseases, as typhoid fever, pneumonia, tuberculosis, erysipelas, rheumatism, and others, while due to the presence of the organisms to which these diseases are usually ascribed, as *B. typhosus* in typhoid fever, *D. pneumoniæ* in pneumonia, *B. tuberculosis* in tuberculosis, etc., owe a part of their symptoms to the complicating organisms which are always present in great variety and number.

As an illustration, attention may be directed to the now commonly accepted idea that in pulmonary tuberculosis the greatest danger to the patient, much of the difficulty of the treatment, and many of the most notable symptoms, such as loss of weight, high temperature, disturbance of circulation, purulent expectoration, destruction of tissue, etc., are due to the complicating organisms; and if the so-called "mixed infection" can be checked or eliminated, efforts may be directed against the bacillus tuberculosis with far greater success than has heretofore been possible in the treatment of this condition.

Dr. Schafer points to the fact that bacterial vaccines not infrequently fail of effect because the truth of the above assumption is not recognized, especially when the treatment consists in the use of a vaccine made from a single species of organism isolated from the patient. Single species vaccines have proved successful in many cases, but the multiplicity of "combined" vaccines now in use points to the conclusion that most patients who require vaccine treatment of any kind require something more than a vaccine made from one organism; and the success attending the use of these vaccines, even when the disease under treatment is apparently due to one species only, lends color to Dr. Schafer's theory.

NAME.

The term "Phylacogen" has been coined to distinguish the several new bacterial derivatives (devised by Dr. A. F. Schafer and produced by us) from other remedial agents of similar character that may be offered to the medical profession. Each specific Phylacogen is further identified by the prefixion of the name of the pathological condition in which it is indicated—as Gonorrhea Phylacogen, Rheumatism Phylacogen, Pneumonia Phylacogen, etc.

The term "Phylacogen" (derived from two Greek words, *Φύλαξ*, a guard, and *γενναν*, to produce) means "phylaxin producer." Phylaxin is the name applied by Hankin to a defensive proteid found in animals that have acquired an artificial immunity to a given infectious disease.

PREPARATION OF PHYLACOGENS.

Phylacogens are neither "bacterial vaccines" nor "sera" as ordinarily understood. They are sterile aqueous solutions of metabolic substances or derivatives generated by bacteria grown in artificial media.

The Phylacogens are made from a large number of species of the well known pathogenic bacteria, such as the several Staphylococci, Streptococcus pyogenes, Bacillus pyocyaneus, Diplococcus pneumoniæ, Bacillus typhosus, Bacillus coli communis, Streptococcus rheumaticus, Streptococcus erysipelatis, etc. The various organisms are present in the material before filtration in approximately equal proportions. The cultures are incubated at 37° C. for seventy-two hours or longer and the bacteria are killed, after which a preservative consisting of 0.5 per cent of phenol is added to the fluid, which is then filtered through porcelain. The basic Phylacogen, made in this manner, and used in the preparation of the several specific Phylacogens, is named "Mixed Infection Phylacogen." This basic Phylacogen is a "polyvalent" preparation, or Polyphylacogen, since the organisms are not from one strain only of a given species, but from cultures made at frequent intervals and from a variety of sources.

Each specific Phylacogen is prepared by modifying the basic material (Mixed Infection Phylacogen) by the addition of an equal amount of the filtrate obtained by growing and treating the organism considered to be predominant in the pathological condition to be treated; for instance, in the preparation of Rheumatism Phylacogen, the Streptococcus Rheumaticus is grown and treated similarly to the several organisms entering into the preparation of the basic Phylacogen. The filtrate obtained from the preparation of the rheumatism organism is added in equal amount to the Mixed Infection Phylacogen, and the resulting product given the specific name, "Rheumatism Phylacogen." A like method is employed in the manufacture of the other specific Phylacogens, such as Pneumonia, Gonorrhea, Erysipelas, etc.

CULTURE AND SAFETY TESTS.

Aëorbic and anaërobic culture tests are made of each lot of Phylacogen prepared, to determine whether the completed product is sterile. Coincidental safety tests of the same preparations are made by injecting relatively large doses subcutaneously into each of a series of animals; if the animals remain healthy the product is passed. A large number of the test animals are anesthetized, killed, and examined, ten days after injection; in each instance the autopsy discloses nothing more than a faint trace of tissue irritation at the site of injection.

PACKAGE.

Phylacogens are marketed in amber glass vials of 10 Cc. capacity and of an improved style. The slender opening in the neck is closed with a stopper, and the closed neck is then dipped into paraffin. This makes a hermetically sealed package. When using the Phylacogen, the operator or assistant removes the stopper, draws into the syringe the amount of Phylacogen desired, and replaces the stopper immediately, if less than the whole amount of 10 Cc. is to be given. Subsequent withdrawals of Phylacogen are made in the same manner. This plan enables the physician to administer such a dose as may be desired.

STABILITY.

Clinical experiments indicate that the Phylacogens will remain potent for a period of at least two years. In accordance with the Federal regulations governing the labeling of biological products, each package bears the date after which it should not be used.

FEDERAL LICENSE.

Phylacogens are manufactured and sold in interstate commerce under the authority granted by License No. 1, issued to Parke, Davis & Company by the U. S. Public Health Service of the Treasury Department at Washington, D. C.

LABORATORY EXPERIMENTS.

Careful investigations have been conducted in our scientific laboratories for the purpose of determining the physiologic effects of the Phylacogens, and to demonstrate their safety when used therapeutically. These researches have been going on without interruption for more than two years, or since the first investigations were begun.

POTENCY.

The degree of potency or energy of the Phylacogens has been carefully ascertained by means of experiments on laboratory animals (some eight hundred of which were used in these investigations). The Phylacogens were injected subcutaneously, intravenously, and intramuscularly, and given internally. The results indicate that the average minimum lethal dose (by *intravenous* injection) per kilo of body weight of an animal is 11.9 Cc. By comparison it would therefore appear that the average minimum lethal dose for a man of 150 pounds body weight is about 809.2 Cc. The suggested *subcutaneous* therapeutic dose is 2 Cc. to 20 Cc. for the average human patient (150 lbs. weight, or 70 kilograms), or 0.03 Cc. to 0.3 Cc. per kilo. The suggested *intravenous* therapeutic dose is ½ Cc. to 5 Cc. for the average human subject (see above), or 0.00715 Cc. to 0.0715 Cc. per kilo. The comparatively non-toxic action of these Phylacogens, therefore, seems assured.

It would appear from correspondence that there is some confusion as to the potency of Phylacogens. The statement has been made several times that physicians are "afraid to use Phylacogens because they are dangerous," and we have been requested on several occasions to issue the statement that they are not dangerous. We cannot make such a statement, because, under certain circumstances, they *may* be dangerous. The proper statement is that relatively (comparatively) they are not dangerous. Sterile water or salt solution, improperly used, might be dangerous. There is not a drug in the entire Pharmacopœia that is not dangerous under some circumstances. Morphine, strychnine, chloroform, ether, and so on through the entire list of powerful drugs, in their proper places and proper doses and under the proper conditions are valuable therapeutic agents, but if improperly used, under unsuitable conditions, and in too large doses, they are certainly dangerous; and so with Phylacogen.

To state the case concisely, it might be said that as a result of a great amount of experimental work on animals it has been found that the average least quantity of Phylacogen required to kill an animal, when injected intravenously, was 11.9 per kilo of body weight of the animal. By a simple process of mathematics it may be shown that it would, therefore, require about 800 Cc. of Phylacogen to kill a man weighing 150 pounds.

In our literature we are suggesting the administration of Phylacogen either subcutaneously or intravenously, and the range of dosage recommended is as follows:

The subcutaneous dose is 2 to 20 Cc., beginning with 2 Cc. and gradually increasing to 10 Cc.

The intravenous dose ranges from one-quarter of a cubic centimeter to 5 Cc.

What does this mean as regards the relative potency of Phylacogen? That the largest dose for subcutaneous injection suggested in our literature is only one-fortieth and the largest intravenous dose 1/160, of the average lethal intravenous dose for a 150-pound man. Patients have received subcutaneous doses as large as 50 Cc., and this dose has been repeated for several days without any other result than to cure the disease; others have received as high as 15 Cc. daily, in a vein, with the same result; but we do not recommend such doses.

HEMATOLOGICAL STUDIES.

The results of elaborate studies in our research laboratories indicate that in most instances the blood of animals injected with the Phylacogens undergoes but slight change, the most notable being in the number of the cellular elements. After the injection practically all tests show a slight diminution in the number of red cells, and a fairly constant leukocytosis, but usually without alteration in the size or condition of the corpuscles. The hemoglobin content and the specific gravity are affected

very little. A large number of blood-pressure tracings have been made, indicating that a depressor (blood-pressure-lowering) principal is present in the Phylacogen. The clotting-time of the blood is slightly decreased.

EFFECTS UPON THE HEART.

The Phylacogen has a distinct effect upon the heart and central nervous system; the pulse may show an increase of fifty beats a minute, the temperature may rise anywhere from one to five degrees.

PHYSIOLOGICAL ACTION.

The present use of the Phylacogens, prepared according to the method originated by Dr. A. F. Schafer, may be objected to by some practitioners on the ground of empiricism, and criticised because there is just now no proved scientific explanation of their exact mode of action. We believe the clinical results obtained (see page 11) thus far with the Phylacogens fully justify their use, even in the absence of a plausible theory explaining the method by which the curative action is produced.

PATHOLOGICAL STUDIES.

Experiments on a large number of laboratory animals have been made to ascertain what tissue changes, if any, follow injections of the Schafer Phylacogens. *No macroscopic or microscopic changes were found in animals injected with quantities of Phylacogen approximating the therapeutic dose.* The clinical safety of the Phylacogens is, therefore, further established. Invariably injections of ten to thirty cubic centimeters (nearly three times the minimum lethal dose—see pages 6 and 7) per kilogram of body-weight were necessary to produce recognizable tissue changes. Such changes as were found were in practically every instance due to acute poisoning, evidently induced by the heavy burden thrown upon the circulatory system of taking care of *three to four hundred cubic centimeters of liquid* differing from the blood in specific gravity, viscosity, and chemical composition. Such doses are, of course, *many times as great as those used therapeutically* (see page 37).

It was shown by these investigations that the immediate symptoms following the injection of Phylacogen were due to various factors under the control of the individual experimenter. These symptoms vary according to (a) *the dose injected,* (b) *the time consumed in making the injection,* and (c) *the place of injection.*

(a) *The dose injected* varied from 10 to 30 Cc. of the Phylacogen per kilogram (2 1/5 lbs.) of body weight (a quantity altogether beyond comparison with the therapeutic dose).

(b) *The symptom-complex* immediately following the injection is in large measure determined by the amount of time taken to complete the injection: thus, an injection of 300 Cc. of Phylacogen within ten minutes is certain to produce vertigo, nausea, tremors, etc., because an insuffi-

cient period of time has been allowed for the Phylacogen to mix with the liquid portion of the blood, nor can chemical and physiological interchanges take place before the blood bearing the Phylacogen reaches the vital organs. This causes a sudden flooding of these organs with a foreign substance, disturbing metabolic cell-processes and functions, and bringing about secondary tissue changes as results of disturbed nutrition.

(c) The *place of the injection.* In the majority of the early experiments the injections were made directly into the jugular or femoral vein. Injections made into large vessels, such as either of the two mentioned, do not permit of slow diffusion of the injected material into the blood stream, as occurs when the Phylacogen is introduced into a small vessel. Not only does the selection of the smaller vessel lengthen the time necessary for the injection, but it brings about a better distribution of the Phylacogen, and, secondarily, an entirely different symptom-complex. It is shown from these experiments that *at least* TEN *times the therapeutic dose is required to cause recognizable damage to any of the tissues.*

In practically all the animals examined, the tissue changes, when any were produced, were due to acute poisoning. Animals which survived the injections always presented lesions in the lungs, intestine, liver, kidneys, and spleen; while some presented also lesions in the heart, stomach, and pancreas. The lesions which were always present in these cases were found in animals which died 24 to 36 hours after the injections. The lesions of the heart, stomach and pancreas appeared later, and were apparently due to impaired function of the first-named organs rather than to the toxic-albumen split from the foreign albumen introduced in the Phylacogens.

Engorgement of the peripheral capillaries as well as the end-arteries seemed a constant phenomenon. The microscopical findings were very similar in all cases, varying in degree and extent rather than in kind.

The lungs were congested in areas so that the air spaces were almost obliterated. Some of the air spaces showed the presence of leukocytes. There was also compensation emphysema. The intestine from the pylorus to the rectum was inflamed; the small blood-vessels leading into the villi of the intestine were engorged. The lining of the intestine had undergone albuminoid degeneration, necrosis and sloughing. There was a diapedesis of the red blood-cells and a hypersection of mucin. Thus, the intestine contained broken-down epithelium, blood and mucus. It would appear that this represented an attempt on the part of the alimentary canal to eliminate toxic-albumen products from the organism: *i.e.,* a vicarious elimination.

The liver was in a state of passive congestion. The parenchyma cells of this organ showed areas of beginning parenchymatous degeneration. The protoplasm of the cells affected was granulated and faint in staining reaction. The liver was much swollen, due to intense congestion.

The kidneys also shared in the congestion manifested in the abdominal

organs. The glomeruli were not affected, nor the relation between them and Bowmann's capsule. The epithelium, however, of the convoluted tubules had undergone cloudy swelling, albuminoid degeneration and necrosis, so that the epithelial cells in some areas lay as a heterogenous mass in the lumen of the tubule, the cells having come away from the basement membrane. The congestion of the blood-vessels extended also to those of the capsule of this organ.

The spleen, while not enlarged, showed hemorrhage into the spleen substance.

The organs most involved were the lungs, the kidneys, the intestine, and the liver, in the order given. The myocardial changes noted were those of enlargement of the heart due to the congestion of the lung and the changes taking place in the kidney. The stomach was found to be involved similarly to the intestine in a few instances.

It should be understood that these pathologic changes were observed only in the tissues of laboratory animals *intentionally injected with several hundred times the therapeutic dose of Phylacogen.*

ANAPHYLAXIS.

Extensive studies with laboratory animals were undertaken for the purpose of determining whether anaphylaxis, or dangerous sensitization of animals, could be produced by injecting Phylacogens. No anaphylactic reactions (29) were observed in our experiments, which were most exhaustive.

CLINICAL TESTING.

In order to obtain direct evidence bearing on the practical value of the Phylacogens, a series of searching clinical tests was instituted in March, 1911. Large quantities of the various Phylacogens were submitted to skilled clinicians in different parts of the country, and the investigation thus begun has continued up to the present time.

With an incredulity amounting to suspicion, and with every determination to be no man's dupe, this investigation of Dr. Schafer's claims for his bacterial derivatives (Phylacogens) was begun. A vast mass of work has been done—in the laboratory, on animals, in the hospitals, at the bedside. Literally hundreds of reputable physicians have administered thousands of doses of the Phylacogens for rheumatism, gonorrhea, erysipelas, pneumonia, and mixed infections. A cool, critical survey of the clinical results has convinced us that the Phylacogens possess great therapeutic power.

We have received reports in detail of six thousand three hundred and twenty-four (6324) cases of various pathologic conditions (from March 15, 1911, to May 30, 1913) treated with Phylacogens. These clinical reports include records from nine foreign countries, as follows: Canada, England, Scotland, Mexico, Cuba, South Africa, New South Wales, New Zealand, Jamaica, W. I. These, together with the United States, make ten

countries in which Phylacogens have already been tested clinically. This series includes cases of all kinds, without regard to age, sex, nationality, color, condition, environment, locality, physician in attendance, whether hospital or private case, whether suited or unsuited for treatment. Of this series of 6324 cases, 5270 are reported as cured, and one thousand and fifty-four (1054) are classed as failures.

THE TOTAL STATISTICS.

Total cases	6324	
Recovered	5270	(83%)
Failed	1054	(17%)

These figures need some explanation. To obviate any suspicion of padding records or changing findings, or of overenthusiasm or exaggeration, we arbitrarily made our dividing line the statement of the physician reporting the case. If he stated that his case recovered, we put it down as "recovered." If he stated that the treatment failed, no matter what the reason was, we entered the result as a failure. The 1054 failures, therefore, include cases of patients who were moribund; their deaths were inevitable.

Our summary includes cases that were not completely treated, the records showing very plainly that for one or another reason the Phylacogen treatment was given up before enough had been administered to do any good. In some instances the patient or the physician became frightened at the reaction and refused to continue, or the physician did not think the Phylacogen would do any good and refused to go on; or the patient did not think he was getting well fast enough and refused to permit further injections. It also includes cases of wrong diagnosis, in which subsequent investigation disclosed the error, so that Phylacogen was given under a misunderstanding and it could not have done any good.

Our classification of the clinical reports is extremely conservative, and if unfairness be charged to us it has been unfairness to the Phylacogen. In other words, the showing above is the worst possible showing of the actual facts, and, under the circumstances, we think it a splendid record.

The directions for dosage and treatment, the description of reactions, the contraindications, and all the suggestions made in the following pages are based upon experience in the treatment of the 6324 cases referred to and the results of the research work conducted in our own laboratories.

TECHNIQUE OF ADMINISTRATION.

Phylacogen should be administered in either of two ways: (a) under the skin (subcutaneously), or (b) directly into the vein (intravenously).

Asepsis.—Thorough surgical asepsis should be practiced in the use of the Phylacogens. Prior to use, both syringe and needle should be thoroughly sterilized, *preferably by boiling*. The hands of the operator and

assistants should be thoroughly scrubbed and rinsed with alcohol or other antiseptic solution. The site of the injection should be scrubbed with Germicidal Soap and water, followed by the application of alcohol, Cresylone, or a solution of mercury bichloride, or painted with tincture of iodine. The ampoule of Phylacogen should be wiped with a pledget of cotton gauze saturated with ethyl alcohol (95%) and laid upon a sterile towel, a similar cotton pledget covering the opening during use. After completing the injection the needle puncture may be sealed with plain collodion.

Intramuscular Injections.—Tests of the efficacy of intramuscular injections have been made, with the result that such injections are not recommended. The great danger of the accidental puncture of a vein has been proved. The rate of speed of the injection for a proper subcutaneous or intramuscular dose is far too rapid for a safe intravenous injection, and in case a vein were accidentally punctured a severe reaction would undoubtedly occur. Syncope, collapse, and alarming and even dangerous symptoms are very likely to be produced by such methods.

Intracervical Injections.—Injections into the muscles of the cervix have been experimentally studied; the results have been similar to those of the usual intravenous injections, and the procedure is not recommended, since intravenous injections are more satisfactorily accomplished when made intentionally in other localities.

Subcutaneous Injections.—Phylacogen should be injected under the skin, not into the superficial fascia or into the muscle. Each injection should be made into a different area. The insertion of the deltoid muscle, the intrascapular region, under the abdominal skin, the thigh, etc., are localities where subcutaneous injections may be satisfactorily made.

Using our Special Phylacogen Syringe and a very sharp needle, the subcutaneous injection is no more difficult or painful than the ordinary hypodermatic injection of any medicament.

TECHNIQUE OF INTRAVENOUS INJECTIONS.

The patient must be in a recumbent position, undressed and in bed, either at his own home or in the hospital. A standing or sitting posture would result in syncope. The skin over the median basilic or median cephalic vein at the flexure of the elbow should be thoroughly cleansed, as described in the section on "Asepsis." The syringe, armed with a needle no larger than 26 gauge nor longer than 5/8 inch, should be sterilized by *boiling* and charged with the quantity of Phylacogen to be injected. The arm just below the shoulder should be firmly compressed in its circumference by means of an Esmarch bandage, a rubber band or tube, or if these are not at hand a firm cotton or linen bandage may be employed. The bandage should not be tied, but simply held tightly with perhaps a single knot which can be instantly loosened by the assistant, who should be in charge of this part of the work. The object of compression of the

arm, of course, is to engorge the veins, and to assist in this the patient should be directed to tightly clench the fist. Although the median basilic vein is larger than the medium cephalic, it is in close relationship to the brachial artery, from which it is separated only by fascia, so that the danger of wounding the artery by an accidental transfixion of the vein with the needle suggests the advisability of choosing the median cephalic vein.

The operator firmly grasps the arm of the patient with his left hand, seating himself comfortably at the side of the bed so that he is not in a constrained position. With the filled syringe, from which the air has been carefully expelled, in the right hand, the barrel of the needle is placed directly over the center of the vein, parallel to its long axis, and is then pointed toward the vein, being held at a very acute angle to the axis of the vein. Then firmly but gently the point of the needle is forced through the skin with a gentle lifting motion until the sense of touch indicates that it has entered the vein. The needle should be forced through the skin into the vein so slowly that there will be no possibility of wounding or piercing the distal wall of the vein. If the needle is thought to be in the vein the syringe should be held perfectly still for a few seconds, when the appearance of a small stream of dark blood running into the Phylacogen will indicate that everything is in readiness for the injection. Some operators withdraw the piston of the syringe slightly to induce the entrance of venous blood into the syringe, but this is unnecessary. Others prefer to introduce the unattached needle, and after it is proved to be in the vein to attach the syringe. This is not considered as good technique as the method described above; and it is more difficult. The danger of the needle slipping when attaching it to the syringe is entirely avoided by the suggested procedure.

When the needle is in the vein, the left hand of the operator is shifted from the posterior aspect of the arm to the anterior surface so that the needle can be held firmly in position. Then the piston should be forced down with a screwing motion, turning it around and pushing it forward at the same time. This *controls the speed of injection* of the Phylacogen much more perfectly than is possible by holding the syringe in the ordinary manner and making pressure on the piston with the thumb and counter-pressure on the barrel with the first two fingers. The injection should proceed with *extreme deliberation and slowness,* not more than 1 Cc. of the Phylacogen being injected in one minute; it should require two minutes to inject 2 Cc., etc. The injection of 5 Cc. should require five full minutes. It is advisable to have an assistant compare the time and dictate the speed with the aid of a watch, with frequent promptings, because time passes so slowly under such circumstances that one minute seems like ten, as has been proved by many experiments.

The constricting bandage around the arm at the shoulder should not be released until the needle is in the vein. *The injection of the Phylacogen*

should not be begun until the constriction is released; in other words, when the needle is in the vein and the operator is ready to begin the injection, he should then direct the assistant to release the bandage—carefully, however, so as not to disturb the position of the needle point which is in the vein. When the bandage has been released the injection should be begun, *but not before.*

THE PATIENT SHOULD ABSTAIN FROM FOOD FOR ABOUT THREE HOURS PREVIOUS TO THE INJECTION, AS THE REACTION MAY CAUSE VOMITING.

HE SHOULD REMAIN IN BED IN A RECUMBENT POSITION FOR TWO OR THREE HOURS AFTER THE CHILL HAS SUBSIDED, AS COLLAPSE MAY FOLLOW GETTING UP TOO SOON.

THE PHYSICIAN SHOULD REMAIN IN ATTENDANCE UNTIL THE REACTION HAS DISAPPEARED.

IN THE AGED, OR WHEN THE PATIENT IS WEAK OR HIS CONDITION BAD, STIMULATION AT THE TIME OF INJECTION IS GOOD PRACTICE. ONE-THIRTIETH GRAIN OF STRYCHNINE HYPODERMATICALLY, OR OTHER STIMULANTS, MAY BE GIVEN AS REQUIRED.

Intravenous injections should never be given in the physician's office.

FILLING THE SYRINGE.—To fill the syringe with Phylacogen the following procedure is simple and easy: The syringe being ready, piston thrust down to the needle end, needle attached, and stopper removed from the ampoule, insert the needle into the neck of the ampoule until it barely reaches the curved portion; then, holding the ampoule with the thumb and first and second fingers of the left hand, the third and little fingers supporting the needle and barrel of the syringe, held in the right hand, let both ampoule and syringe rest in a horizontal position, and with the right hand slowly withdraw the piston of the syringe. The Phylacogen will be rapidly drawn into the barrel. As the ampoule is emptied, gradually raise it to a vertical position, inverting it so that the neck points downward. The Phylacogen will not run out, but will be drawn into the syringe. One or two trials will demonstrate how easy it is to withdraw all of the contents of an ampoule into a syringe. When the syringe contains all of the Phylacogen the air should be expelled in the usual manner; the apparatus is then ready for the injection.

When it is desired to make an injection of one cubic centimeter or less of Phylacogen, and difficulty is experienced in injecting just this amount from a large syringe, the barrel may be partly filled with a convenient bulk (2 or 3 Cc.) of sterile normal salt solution and the required amount of Phylacogen then drawn into the syringe as described above. In such a case the total contents of the syringe should be regarded, so far as the *speed* of the injection is concerned, as consisting entirely of Phylacogen: thus, while the administration of 1 Cc. of Phylacogen alone should require one minute, 1 Cc. of Phylacogen *plus* 2 Cc. of salt solution should require three minutes for injection.

ADDITIONAL SUGGESTIONS AS TO ADMINISTRATION OF PHYLACOGENS.

1. The injection of Phylacogen sometimes causes headache, more or less intense, this being one of the signs of the reaction. When Phylacogens are administered late in the day the reaction may prevent the patient from sleeping comfortably at night; therefore it is suggested that *whenever possible Phylacogens be administered before 10 a. m.* When this is done, even a pronounced reaction has usually entirely subsided by bedtime, and the patient enjoys a comfortable night's rest.

2. When giving intravenous injections it has been found satisfactory to slightly warm (to 98° F.) the Phylacogen, as warm Phylacogen when injected into a vein does not seem to cause quite as intense a reaction as cold Phylacogen. The Phylacogen may be safely and easily warmed by immersing the unopened ampoule for a few minutes in a vessel containing a little warm water. As the syringe is sterilized by boiling, it is usually so warm as not to cool the Phylacogen. Phylacogen should not be hot, *merely warm*—that is, of a temperature of approximately 98° F.

3. Physicians are warned against the practice of injecting large doses of Phylacogen subcutaneously, or *doses of any kind intravenously,* in their offices. The Phylacogen should be administered either in a hospital or in the patient's home. Several instances have been reported in which Phylacogens have been given in the physician's office and a pronounced reaction came on before the patients were able to reach their homes, bringing on an embarrassing situation, occasioning a great deal of alarm and the collection of a small crowd of onlookers, in one case because the patient was unable to stand and apparently was very sick.

4. If Phylacogen is injected into the tissue around a vein or into its wall, or if the needle transfixes the vein, a sore arm will always result; and the appearance of swelling, tenderness, pain and redness at the site of the intravenous injection is always an indication of faulty technique.

5. Rapid intravenous injection of the Phylacogen results in pronounced circulatory disturbances, evidenced by a pinched expression, blueness of the lips, a slaty-blue color rapidly spreading over the face and attended with disturbed heart action and a rapid, feeble, and at times intermittent pulse, and rapid, shallow respiration. (See Reactions.)

6. The appearance of the symptoms described in section 5, after a subcutaneous injection, almost invariably indicates the puncture of a vein and the accidental entrance of the Phylacogen, *i.e.,* an intravenous injection made much too rapidly.

REACTIONS.

Experience has shown that the injection of Phylacogen is usually followed by reaction, local or systemic, or both. These reactions may be very slight or quite pronounced.

LOCAL REACTIONS.

Subcutaneous Injections.—The usual effect of the subcutaneous injection is a sense of fulness at the puncture site, followed by numbness, redness, and then pain, greater or less, according to individual susceptibility. Within six to twenty-four hours, redness and swelling appear at the point of injection, attended with pain, although this may amount only to tenderness upon pressure. Frequently there will be complaint of numbness around the site of the injection. The local reaction slowly disappears, usually persisting for eight to twelve hours, although in certain cases it may not entirely disappear until twenty-four to forty-eight hours have elapsed.

Intravenous Injections.—There is no *local* reaction following an intravenous injection that is properly made.

SYSTEMIC REACTIONS.

The Phylacogens produce a distinct effect upon the heart and central nervous system; the pulse rate may increase ten to fifty beats per minute above the rate before injection, and the temperature rise one to five degrees; a systemic reaction is frequently produced as described below.

Subcutaneous Injections.—Frequently after a subcutaneous injection (in some cases one to four hours) the patient feels chilly, a sensation which rapidly becomes more decided. The chill may be so pronounced that at times the movements of the patient will vigorously shake the bed. The chill usually lasts from twenty to sixty minutes and gradually passes off; the patient then becomes drowsy, breaking into a profuse perspiration and falling asleep.

The reactions are striking and unique, and have in certain instances occasioned great alarm on the part of the physician, patient, and others interested in the patient. All of these symptoms are transitory in character, speedily disappear, and should cause no uneasiness on the part of the attending physician, who should warn the patient and his friends or relatives against needless alarm, and insist that the reaction be disregarded in view of the result to be expected.

Intravenous Injections.—Usually, within thirty minutes after an intravenous injection (in some cases one to four hours), the patient feels chilly, a sensation which rapidly becomes more pronounced. He will slip down in bed, draw the clothing close around his neck, turn over on his side, flex the thighs upon the abdomen, and by this time he will be in a decided chill, which will become more and more pronounced until it assumes the proportions of a severe rigor. The chill will be so violent that at times the movements of the patient will vigorously shake the bed. The chill usually lasts from twenty to sixty minutes, and gradually passes off; and the patient then becomes drowsy, breaking into a profuse perspiration and falling asleep. This reaction when first observed is startling. It may occasion disquietude and even alarm; and since this method of treat-

ment (Phylacogen) is absolutely new and without precedent, it is advisable to administer Phylacogen intravenously only after a preliminary subcutaneous dose.

The first injection should invariably be given *subcutaneously*.

When the Phylacogen is injected intravenously, and it is reported that there is no reaction, it is very doubtful if the injection was actually made into the vein; since experience derived from a study of several thousand intravenous injections of Phylacogen shows that a reaction, more or less pronounced, is inevitable if the injection is actually made into the vein.

For purposes of further enlightenment on this point, it is desirable that the following be carefully noted and accurate personal observations made, not trusting to hearsay: When an intravenous injection is correctly made there is never any local reaction, but invariably a general reaction, as herein described. If, at the site of a supposed intravenous injection, there occurs swelling, redness, local pain or stiffness of the joint, it is an infallible sign that, while part of the Phylacogen may have been injected into the vein, some at least has been injected into the tissues surrounding the vein.

Abdominal pain, nausea, vomiting, frequent bowel movements, at times purging, feeling of great depression, bodily weakness, and a sense of numbness over the entire body have been met with, as well as the reactions already noted. Stomatitis is an occasional occurrence. In a number of cases herpes has appeared around the mouth, the lips becoming cracked and bleeding. It is believed that the very severe reactions only follow the administration of doses larger than desirable, or those given at too frequent intervals (see page 38); or the accidental or unintentional injection into a vein of a dose intended to be given subcutaneously only and which is, therefore, far too large and is injected too rapidly for safety by the intravenous route.

GENERAL COMMENTS.

1. The general condition of the patient, following a pronounced systemic reaction, is usually promptly improved. The facial expression becomes notably better; the temperature, pulse-rate, and number of respirations decline, and there is a decrease in blood pressure.

Certain patients are met with who do not respond to subcutaneous injections, no matter how long continued, but who do respond to small intravenous injections. There seems to be no way in which these patients may be differentiated before treatment. This peculiar resistance to subcutaneous injections must, therefore, be borne in mind, and it is suggested that before the Phylacogens are pronounced a failure in a given case of this kind, one or more small intravenous injections be administered.

2. A characteristic effect of Phylacogen treatment in some patients, who are particularly sensitive to proteids, is the development of single

or multiple fever blisters or spots of herpes on the lips or around the edges of the nostrils. This has been noted quite commonly in cases treated with large doses of Phylacogen, and has occasioned some alarm. It should be remembered that this symptom, although causing the patient some discomfort, disappears in a few days.

3. A critical fall of temperature is often preceded by a sharp rise, but when the fall occurs it takes place with extraordinary speed, the patient becoming afebrile; he may have a subnormal temperature within a few hours or even within one hour. Sometimes this critical state is accompanied by a profuse sweat, or even collapse may develop, with urgent dyspnea, due to vasomotor palsy and vascular relaxation. The day after this induced crisis, the temperature returns to a point slightly above the normal. Sometimes in an apparent crisis the temperature fails to reach the normal before it rises again.

4. A severe local reaction sometimes follows the subcutaneous use of Phylacogen. The following procedure will assist in obviating the distress complained of by patients:

Cleanse the site of the injection thoroughly, then apply a one-half-per-cent solution of carbolic acid to produce partial anesthesia. Insert the needle, producing as little trauma as possible, and inject *slowly, the slower the better;* this allows the Phylacogen to diffuse itself throughout the tissues. The inflammatory zone around the site of injection will be much less marked, and less pain is caused by the operation. It is quite evident that if a large amount of Phylacogen (5 or 10 Cc.) be rapidly or forcibly injected under the skin it must force or tear its way through the tissues, necessarily producing pain. If, however, the Phylacogen be injected very slowly, it will find its way along the lines of least resistance and will not unnecessarily damage the tissues by making new channels.

5. The application of hot packs for one or two hours, the first applied immediately after the injection, will minimize the local reaction to a large extent. Plain gauze saturated with water as hot as can be borne may be used. The applications should be continued, a new compress being applied as soon as the last one begins to lose heat.

THE USE OF DRUGS TO MODIFY THE REACTION.

It has been suggested that the preliminary injection of morphine or heroin would obviate the systemic reaction following Phylacogen, and thus permit larger or more frequent doses. Such action should not be countenanced. The injection of morphine or other powerful hypnotic drugs may either mask or prevent the development of the symptoms of a heavy reaction, while the risk of inducing the morphine habit cannot be ignored. The practice is entirely unnecessary and bad from every standpoint.

The relief from pain experienced by certain rheumatic patients in the clinical tests was so immediate and definite that a number of eminent

medical men were led to suspect that the Phylacogens contained morphine or similar drugs, and, obtaining specimens surreptitiously, they subjected them to searching chemical examinations, expecting to find morphine present. Of course the results of the chemical tests were negative; there never was or never will be anything of the sort in Phylacogen.

A certain amount of reaction is now believed to be desirable and even necessary. Physicians who have had much experience with Phylacogen state that when there is no reaction there is not likely to be much if any relief from the symptoms; and the more definite the reaction, within reasonable bounds, the more certain the prospect of a cure. Consequently, they are satisfied and even pleased when the patient reacts strongly to Phylacogen.

Very violent reactions may be prevented by beginning the treatment with small doses, not over 1 Cc. subcutaneously, or ¼ Cc. intravenously, and gradually increasing these doses according to the indications in each case, keeping in mind the fact that different subjects react differently to the same drug.

CONTRAINDICATIONS.

1. *Intravenous method.* Terminal cases (those of patients already dying), hopeless cases, cases with severe and dangerous cardiac involvement, or cases with pronounced arteriosclerosis, should never be treated with Phylacogen intravenously. Nephritis is also a contraindication.

2. *Subcutaneous method.* There are no contraindications to the subcutaneous administration of the Phylacogens, unless it be nephritis.

3. *Age.* Age alone presents no contraindication to the administration of the Phylacogens, patients as young as five (5) days old and as aged as one hundred (100) years have been successfully treated with Phylacogen.

4. Patients who are *recovering* should not be treated, as the results would be inconclusive.

5. Cases that are *considered hopeless, i.e.* patients who are moribund or dying and in whom there seems to be no possibility of recovery under any circumstances, should not be treated with Phylacogen either subcutaneously or intravenously. Such cases are not fair tests, and if the patient dies no conclusion can be reached as to the value of Phylacogen.

6. *Endocardial complications* of acute or chronic rheumatism, generally speaking, are not contraindications to the administration of Phylacogen; such cases, however, if treated, should be injected subcutaneously, *not intravenously,* and with small doses very cautiously and gradually increased, according to the conditions in each individual case.

7. *Arteriosclerosis,* in patients 50 years of age or over, is a contraindication to intravenous inoculation; these subjects may be treated subcutaneously, never intravenously. (See paragraph No. 6.)

8. A patient suffering from an infectious disease, both from sentiment and in the hope of a possible cure, *may* be given Phylacogen treatment at

any stage of the disease regardless of whether the patient has improved or is considered dying. Treatment in such cases, however, should be instituted with an open mind, without bias, and *with a distinct realization of the situation* and what may occur under such conditions.

9. Cases which are hopeless or considered dying, and in which a fatal prognosis has been made, may be treated with Phylacogen nevertheless, but with the distinct understanding that under such circumstances *nothing is claimed for the Phylacogen nor expected of it*—it is given solely with the possibility, no matter how remote, of averting the fatal issue. We have records of a number of cases in which the various Phylacogens were injected as a *last resort,* in patients said to be beyond the possibility of recovery, and yet a gratifyingly large proportion of these yielded to the Phylacogen treatment and were cured.

10. Patients who are recovering may be treated, but without prejudice against the Phylacogen, since experience seems to show that Phylacogen treatment will bring about a successful conclusion of such a case more rapidly than any other treatment.

11. Syphilis. Absolutely nothing can be expected of Phylacogens in the treatment of syphilitic cases. The very great number and variety of syphilitic manifestations must always be borne in mind, and when the diagnosis is not absolutely certain and proved, in cases in which Phylacogen has been administered without results, syphilis should be suspected and the Wassermann test instituted, remembering that a single negative Wassermann test does not definitely exclude syphilis. In our clinical experience a number of cases occurred in which the Phylacogens were given under mistaken diagnosis and abandoned as valueless, whereas a more careful study disclosed their syphilitic etiology.

PHYLACOGEN AS A LAST RESORT.

The practice of using Phylacogen as a last resort is something that no one can prevent. It is one of the tests that every new preparation seems destined to undergo during its experimental stage. Any physician will treat his ordinary cases in the manner best known to him, but when they become critical he thinks of something new that has recently been introduced and is willing to "give it a trial." Generally the test is apt to be *most unfair,* and ofttimes terminates with negative results, because the cases have advanced too far. The continued use of these new products will automatically establish them in their proper place in medicine. No amount of argument can change the mental attitude of the physician toward a new product; it must earn its own reputation by doing the unusual and not the usual.

DEATHS.

A review of the cases that have terminated fatally during or immediately following Phylacogen treatment shows that most of them were

desperate cases, and in all probability the patients would have died without the treatment. In a number of cases the pathological condition was one which could not be successfully treated with Phylacogen, and in a large number of other cases the diagnosis which caused the treatment to be instituted was entirely incorrect, as subsequently proved. *For the purpose of determining the efficiency of the Phylacogen, cases in which a fatal prognosis has been made should not be treated.* In view of the fact that a number of exceedingly desperate cases, in which a fatal prognosis had been made, were saved by the administration of the Phylacogen, it is important to remember that it may be given in the remote possibility that it *may* do good, but when given in such cases the dose should be small and so adjusted that pronounced reactions will be avoided.

In over six thousand case-histories on file in our home offices in Detroit, Michigan, there is *not ONE case* which shows any actual evidence that death was due to the Phylacogen.

It will be of interest to note the following list of pathological conditions, cases of which terminated fatally, notwithstanding the fact that Phylacogen was administered:

Syphilis, carcinoma, compound comminuted fractures, pulmonary tuberculosis (advanced), pneumonia (autopsy showed pulmonary tuberculosis), pneumonia with exophthalmic goitre, pneumonia with measles, tubercular meningitis, Cæsarian section, empyema (after operation), general peritonitis, subphrenic abscess, subdural abscess, pyelonephritis, purulent pericarditis, diabetic gangrene, puerperal sepsis with typhoid fever, suicide while delirious, pneumonia with uremia, typhoid (autopsy showed acute miliary tuberculosis), chronic interstitial nephritis with valvular disease, arteriosclerosis (advanced), sarcoma, puerperal sepsis (advanced), interstitial nephritis with acute cardiac dilatation, alcoholic pneumonia with delirium tremens, pneumonia with pyelonephritis, nephritis, erysipelas with meningitis, erysipelas with acute delirium, double pyosalpinx, ruptured uterus, puerperal sepsis and pneumonia, Ludwig's angina, uremia, general pyemia, malignant endocarditis, tubercular appendicitis and peritonitis, pneumonia with acute nephritis, typhoid (autopsy showed ruptured appendix).

In none of the cases terminating in death has there been any genuine evidence that the deaths were directly due to the administration of the Phylacogen, although Dr. Schafer has stated (April 15, 1911, *Therapeutic Gazette*) that the intravenous or subcutaneous administration of from 5 to 15 Cc. might *hasten* the fatal termination in *terminal cases.*

From a study of the cases treated during this year it is readily seen that many were terminal cases and major surgical infections of the most desperate character. While a gratifying number of the patients recovered, still a more conservative method of determining the efficiency of Phylacogen would have made a much more brilliant showing.

GENERAL COMMENTS.

It should be clearly understood that the use of these Phylacogens is seemingly contrary to generally accepted biological theories and without precedent in therapeutics, and that former experiences in the treatment of conditions for which they are to be used are not reliable guides as to their use.

It is urged that if treatment is begun with the Phylacogens in any given case their use should be persisted in for a sufficient length of time to determine beyond any doubt their efficiency or otherwise.

A study of the records of over six thousand (6000) cases of various diseases treated with Phylacogens demonstrates conclusively the necessity of the physician rigidly guarding against being misled by early impressions. It is unscientific to administer one, two, or three doses of Phylacogen in a given case, and then, because the patient is not entirely well, or at least greatly improved, to suspend further treatment with the Phylacogens and to reach the conclusion that they are inadequate. Likewise, simply because a patient shows remarkable results after two or three injections of Phylacogen and claims to be or appears to be entirely well, that is now known to be no reason for stopping the treatment. Some of the earliest cases of rheumatism in which the patients seemed entirely well after the administration of two to four injections of Phylacogen, relapsed and required further treatment, exactly as is liable to occur under the use of the older and better known therapeutic agents, such as the salicylates, etc.

Physicians should insist upon the continuation of the Phylacogen in any case in which it is begun for at least six injections, even if the patient does not seem to improve. On the other hand, if the patient is not well or greatly improved after the six injections have been given, the treatment should be persisted in, the dose perhaps increased in size, or the interval between the doses shortened; or the Phylacogen should be given intravenously and the treatment kept up until either there is no possibility of cure or the patient is well.

Several cases have shown no apparent effect after seven daily subcutaneous injections, but began to improve after the fourteenth or fifteenth subcutaneous injection and from that time on improved rapidly.

To apply a new and unprecedented method of treatment and in doing so to disregard the instructions of the originators, to give Phylacogens for one or two doses and then to discontinue treatment because no apparent effect is observed, or because the patient "complains of numbness," or because the "patient refuses further treatment," or because the reaction following the injection "seems too severe," is unscientific, and conclusions under such circumstances are not well founded. It would be of more assistance to the clinical study of the Phylacogens if medical men would refrain from using them in cases in which the diagnosis is doubtful; when

the patient is not under control or when the treatment cannot be persisted in for a sufficient length of time to enable them to conscientiously form conclusions based upon definite clinical facts.

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RHEUMATISM PHYLACOGEN.

Rheumatism Phylacogen is the specific Phylacogen indicated in the treatment of "rheumatism" or any of the rheumatic infections, as hereinafter described. The Streptococcus rheumaticus of Poynton and Paine is treated in the manner described in the section on the preparation of Phylacogen (see page 5), and a definite volume of the filtrate thus obtained is added to an equal volume of the basic Mixed Infection Phylacogen. The resulting product is Rheumatism Phylacogen.

NOMENCLATURE.

The term "rheumatism," like many another medical word, is rather loosely applied to a multitude of diseases, and covers many sins of omission and commission in diagnosis (30). Rheumatism, *per se,* is not a disease. It is the clinical manifestation of a variety of toxic infections. The search for a specific cause has led to the dismemberment of the group of affections formerly called "rheumatism" (31).

Rheumatism has been defined as a constitutional disease characterized by inflammation of the connective tissue structures of the body, especially in the muscles and joints, and attended with pain which is aggravated by exposure, and with a tendency to recurrence. There is also an arthritis of an infectious nature—the type referred to as that resulting from a focal point of infection of the gums, tonsils, sinuses, septic bronchitis, chronic pulmonary abscess, infections of the gall bladder, appendix and genito-urinary tract, and intestinal stasis, the etiology of which is still a mooted question. The majority of investigators look with favor upon the theory that rheumatism is a result of infection, while a few still cling to the idea of the nervous origin of the disease.

The term "rheumatism" has deservedly come into general disfavor. Used indiscriminately by physicians and laymen, it includes a multitude of physical ills. Myalgia, arthritis, periostitis, osteomalacia, sprains, fractures, neuritis from various causes, have all been at times catalogued under this one head. Of late, however, there has been a well marked tendency to classify properly the different aches and pains to which human flesh is heir, and to designate them with a proper scientific nomenclature (33).

There is need of emphasizing the desirability of a correct differentiation of the causes and seat of bodily pains; in other words, of making a correct diagnosis, and then applying a definite descriptive name to the condition. For instance, a muscular painful affection should be called myalgia. To determine its location, such terms as pleurodynia, cephalodynia, torticollis, or lumbago may be used. If a joint is inflamed, arthritis is the term by which the process should be known. The various forms of

arthritic inflammation may be designated according to the stage of the disease or the part of the joint affected. If confined to the synovial membrane, the term synovitis is sufficient, with a prefix to designate the cause, just as in the case of arthritis; *e.g.,* rheumatic arthritis, tubercular arthritis, gonorrheal arthritis, either acute, subacute or chronic. The word "rheumatism" should be used only when a generic term is wanted to designate a group of diseases and even then with discrimination.

THERAPEUTIC INDICATIONS.

Rheumatism Phylacogen is indicated in the true rheumatic infections variously called "acute rheumatic fever," "acute articular rheumatism," "acute inflammatory rheumatism," and "chronic rheumatism," "rheumatic arthritis," "rheumatic myalgia," "rheumatic neuralgia," "rheumatic iritis," "lumbago," "sciatica," etc.—in other words, all pathologic conditions due to infection by the Streptococcus rheumaticus.

Clinical experiments would seem to warrant the conclusion that most cases of rheumatic infection (not gonorrheal, syphilitic or tubercular) may be successfully treated with Rheumatism Phylacogen (Schafer). In almost every acute case in which it has been used, its administration has been followed by relief from pain, disappearance of swelling and redness, and ability to freely move the affected joints.

In chronic cases of rheumatic arthritis, the condition being the outcome of recurrent attacks of acute rheumatism, resulting in more or less immobility of the joints and attended by some swelling, with or without redness, and accompanied with other evidences of inflammation, Rheumatism Phylacogen has afforded prompt relief, the swelling and pain on motion disappearing, with restoration of complete mobility. In chronic cases in which the patient had not been suffering from an acute exacerbation, but complained of stiffness in the joints and pain on motion, with a history of previous attacks of rheumatism, equally good results have been obtained. These statements are based upon experience in the treatment of 2412 cases of rheumatic infection, the records of which are now (June, 1913) on file in our Department of Experimental Medicine, with successful results in 1949 of them, as follows:

RHEUMATISM PHYLACOGEN.

		Cases.	Recovered.	Failed
1.	Arthritis	2144	1736	408
2.	Iritis	21	20	1
3.	Sciatica	44	38	6
4.	Neuritis	8	6	2
5.	Neuralgia	3	2	1
6.	Trifacial neuralgia	2	2	0
7.	Lumbago	8	7	1
8.	Chorea	19	18	1

	Cases.	Recovered.	Failed.
9. Tonsillitis (amygdalitis)	41	41	0
10. Myalgia	4	3	1
11. Purpura rheumatica	3	3	0
12. Arthritis deformans	86	52	34
13. Pyorrhea (gingivitis)	5	5	0
14. Myocarditis (rheumatic)	3	2	1
15. Endocarditis (rheumatic)	20	13	7
16. Cephalodynia (rheumatic)	1	1	0
Total	2412	1949	463

The definition of the word "failed," as here used, may be found on page 11 of this brochure.

It might be well to divide chronic rheumatic arthritis into three classes, as follows:

Class 1. Cases following an acute or subacute attack or attacks of rheumatism, without symptoms of joint involvement other than contraction and atrophy of the muscles which produce a pseudo-ankylosis, being apparently relieved by a few (six) injections.

Class 2. Cases which when first seen may or may not have suffered a recent attack of acute or subacute rheumatism, but always give a history of rheumatic conditions in the past, and present symptoms of joint involvement, such as swelling due to effusion, thickening of the synovial membranes or joint ligaments, and at times osseous changes. Cases of this type also respond to Phylacogen treatment so far as the pain is concerned, and, with the exception of those presenting osseous changes and disability, will in most cases be entirely relieved. It should be understood that cases presenting *bone changes, or new tissue formation, or collections of pus, will not be benefited,* so far as the osseous changes are concerned.

Class 3. Cases of patients who apply for treatment on account of pain in one or more joints, with or without the history of a previous attack of acute articular rheumatism. Dr. Schafer believes that many cases in this class are more or less due to pneumococcic infection as well as infection with other organisms, yet many of them yield to treatment with Rheumatism Phylacogen, which, of course, is really a poly-phylacogen. In such cases a few small doses of Pneumonia Phylacogen should be administered.

ETIOLOGY.

Formerly, among both physicians and laymen, the accepted cause of "rheumatism" was "uric acid;" among laymen the idea still obtains to a large extent. For the past fifteen years, however, or during the period of evolution of the bacterial theory of the etiology of disease, a gradual recognition of the true cause or causes of so-called rheumatism has come about. While there may be an excess of uric acid in the urine during the

progress of the disease, that circumstance is now considered *post hoc* rather than *propter hoc*.

A number of efforts to isolate and identify the specific microörganism of rheumatism have been made. It would appear that Dagnino (34), and Poynton and Paine (4), have been successful in the search, and while many workers do not accept their conclusions, Myer's (36) studies seem to substantiate them. Walker and Beaton (9) have further confirmed the claims of Poynton and Paine and have named the organism "Streptococcus rheumaticus," to distinguish it from ordinary streptococci, and to identify it as the specific organism causing rheumatism.

Among the pioneers in this work may be mentioned Mantle, Klebs, Leyden, Singer, Loeffler, and Michels.

Apert, in 1898, placed the etiology on a firmer basis by producing mitral disease in a rabbit by injecting the microörganisms obtained from the blood of a patient ill with rheumatic fever.

Westphall, Wassermann and Malkoff, in 1899, produced fever and multiple arthritis in eight rabbits with a similar organism obtained from a fatal case of rheumatic arthritis.

Vernon and Shaw, in 1903, demonstrated that monkeys were susceptible to infection with the culture obtained from the blood of a fatal case of rheumatic pericarditis immediately after death.

Fritz, Myers, Ainley, Walker, Beaton, Beattie in Edinburgh, and Longcope in America, have confirmed these observations and added much information of a similar nature. The results of experiments by different investigators are, on the whole, remarkably constant, and one cannot lose sight of the fact that microörganisms present in the lesions of acute rheumatic arthritis are capable of producing similar lesions in a susceptible animal.

Among 133 cases investigated by Langmead, 43 per cent showed evidence of infection of the tonsils or pharyngeal necrosis. It is thought by many competent observers that the tonsils and pharyngeal necrosis are the points of inroad of the infection. Microörganisms isolated from the tonsils have produced arthritis and endocarditis in animals, and many cases of apparent rheumatic fever in the subacute. chronic and recurrent types have been completely relieved by removal of the tonsils.

There is much evidence against the theory that rheumatic arthritis is simply a mild pyogenic infection. Some observers lay much stress on the fact that salicylates have no effect on the ordinary streptococcic arthritis or that due to other pyogenic bacteria. The secondary course in streptococcic arthritis is very different from that of rheumatic arthritis. According to Osler, true rheumatic joints, due to infection by the streptococcus rheumaticus, never suppurate. In the isolation of the streptococcus pyogenes many writers simply discover the presence of secondary infection.

Ely (2) states that, "according to the modern view, acute articular

rheumatism is really an acute infectious arthritis," and that "in certain instances infectious arthritis is thought to be due to the toxins rather than to the bacteria themselves, but the possibility of the presence of the bacteria in the bone marrow must not be overlooked."

Various authors have attacked this problem afresh from the histologic point of view. Do the rabbit lesions which follow inoculation with streptococci isolated from human rheumatism correspond microscopically with those of human rheumatism, or not? Definite results hitherto have been few, but, such as they are, they enable us to reply to this question in the affirmative. Inoculation of rabbits with streptococci procured from cases of rheumatic infection has provoked arthritis, endocarditis and other lesions, histologically identical in experiments conducted by different investigators including all the phenomena, even the submiliary nodule, found in the rheumatic lesions of man. Such differences as exist between the experimental rheumatic infection and the human variety are accounted for by a difference in the mode of entry of the infective agent in the two conditions. (27A.)

Schloss (15) states that the clinical picture of acute rheumatic fever suggests strongly that the disease is due to some infectious agent.

On the continent, in 1887, Guttman, Birch, Hirschfield, Bouchard, Charin, Triboulet, Sahli and Sacaze found organisms in acute rheumatism. In 1895, Newsholme in his Milroy lectures demonstrated the epidemicity of the disease, and in the same year Leyden isolated a delicate diplococcus.

In 1903 Beaton and Walker (9) confirmed Poynton and Paine's results, isolating the diplococcus in fifteen cases. In 1904 Beattie also produced experimentally a combination of lesions similar to those found in rheumatic fever in man.

There is, then, at the present time strong evidence that the diplococcus rheumaticus is a special organism and the cause of acute rheumatism.

Sir Dyce Duckworth (21) states that "rheumatism is as widespread as communities." He believes that certain subjects are as likely to harbor the bacteria of rheumatism as the subjects of the strumous diathesis and to provide a suitable soil for the bacilli of tubercle. He writes that "the etiology of acute rheumatism has long been open to argument, but so many independent research workers have determined upon a coccus allied to the streptococcus family that most medical men look upon it as the specific cause."

Mantle (22) found organisms which he claimed to be the etiologic factors in rheumatism.

The results obtained by different observers in relation to rheumatic infection have varied considerably, and no definite conclusion has been reached as to whether the "streptococcus rheumaticus" is or is not the pathogenic organism of acute rheumatism. Dr. Carey Coombs (7), Dr. Reginald Miller and Dr. E. H. Kettle have made an investigation in order

that they might answer the question: "Do the rabbit lesions which follow inoculation with streptococci isolated from human rheumatism correspond microscopically to those of human rheumatism, or not? They state that their results hitherto have been meagre, but such as they are they enable them to reply to this question in the affirmative. From their observations they make three main deductions: 1. The lesions produced by inoculation of rabbits with different strains of streptococci isolated from cases of rheumatic infection were identical in their essential features. 2. The lesions found in these rabbits were substantially the same, whatever the organ concerned. In the heart muscle and in the endocardium, in the synovial tissue of the joints, and in the kidney, the phenomena specially noticeable were formative in type and endovascular in origin. 3. The importance of these observations lay, however, chiefly in the fact that the lesions of human clinical rheumatic infection were reproduced in essential details in rabbits by inoculating them with streptococci isolated from patients suffering from rheumatic infection.

Rosenow isolated organisms (28) corresponding closely to the micrococcus rheumaticus from one or more joints, in seven of eight cases of acute articular rheumatism in the early stages. Blood cultures were made in four cases and gave positive results in two. Cultures from the tonsils yielded similar organisms in two cases. The cases were all typical and not unusually severe. In four there was a distinct history of tonsillitis. Two of the patients had marked pain and tenderness of the muscles, especially about the shoulders, neck, and back, and of the more tendinous portions of the muscles of the extremities.

Experiments on rabbits, guinea-pigs, white rats and dogs show that the cultures are of relatively low virulence; they are, speaking generally, more virulent than Streptococcus viridans, but less virulent than hemolytic streptococci and the pneumococci. The results of injections into the ear vein in rabbits are very striking and different from those following injections of Streptococcus viridans or hemolytic streptococci, or both. Multiple non-suppurative arthritis, endocarditis, pericarditis and myocarditis have been obtained repeatedly in the same animal. The strains obtained from the tonsil at the height of the attack gave the same results as those from the joint, but eight days later, growing exactly as a Streptococcus viridans, produced endocarditis but not arthritis, pericarditis or myocarditis.

It may not be generally known, but it is a well established fact, that a Venezuelan physician, Dr. Dagnino (34), professor at the University of Caracas, succeeded in isolating the streptococcus rheumaticus as far back as July, 1894, and January, 1895. Dr. Dagnino's researches in this field were carried on in the clinic of Maragliano.

In a lecture delivered by Prof. E Maragliano on three cases of acute rheumatic polyarthritis, the lecturer, after mentioning the unsuccessful attempts of several investigators to isolate from the blood or articular

exudate of purely rheumatic patients a specific bacterium capable of reproducing the disease in animals, concludes as follows:

"I must here recall a series of investigations carried on in our clinic by a young American physician, Dr. Dagnino, and which have not as yet been published in detail. He made his researches in fourteen cases of pure arthritis, examining both the blood and articular exudate, and in twelve of them he found a special microörganism morphologically recalling the staphylococcus but sharply differentiated from the latter by its cultural characteristics. This microbe, obtained from the blood of twelve polyarthritical patients, was grown in suitable media and injected into rabbits, which developed typical arthritis, similar to that observed in human subjects, with serous and serofibrinous exudates and symptoms of pericarditis and endocarditis.

"Something yet more significant happened. The rabbits thus injected were placed in five cages, which subsequently were not disinfected, but later on were occupied by eight other rabbits, which developed articular affections attended with inflammation in the joints and typical endocarditis. So that Dagnino succeeded in obtaining from the blood of twelve patients a well defined microörganism which reproduced itself in animals and caused in them an acute, contagious polyarthritis.

"Through an unfortunate mishap, during the vacation season at the university, the cultures were not properly looked after, and the bacterium became lost. Efforts are now being made to recover it.

"Not long ago Wassermann isolated, in the Koch Institute, an organism similar to that discovered by Dagnino, both morphologically and because of its pathogenic action on rabbits. But comparing the report of Dagnino's investigations referred to in one of my previous closing lessons, it appears that a broad outline of Dagnino's researches was published three years before Wassermann's discovery."

In an article entitled "The Etiology of Rheumatic Polyarthritis," Maragliano (34), commenting on the disappointing results of a recent discussion of this subject in the *"Verein für innere medizin"* of Berlin, writes as follows:

"The only way to illustrate the bacterial pathogenesis of the true, genuine, acute rheumatic polyarthritis, is by recovering from the exudates or blood of the patients a microörganism capable of reproducing the disease.

"The only researches made in this direction are those carried out by Dagnino in my clinic. He, with the help of my assistant, Lucatello, studied in 1895-96 fourteen cases of *typical* acute articular rheumatism, and succeeded in recovering from the circulating blood of twelve patients *a special micro-organism* shaped like a staphylococcus.

"This organism occurred in the shape of a coccus about half as long as the common staphylococcus aureus, but never in groups as large; in fact, when grown on bouillon, it often appeared as a diplococcus or in very short chaplets. It was readily colorable by the 'Gram' method and

did not liquefy gelatin; the colonies took on a yellow color as they grew in depth. It was, therefore, well differentiated from the typical staphylococcus pyogenes.

"This bacterium has given very important experimental results. A dose of ⅓ to 1 Cc. of the bouillon culture injected into the veins of rabbits would bring about death inside of sixteen days, preceded by articular lesions made evident by the very painful (if possible) movements of the affected limb, which showed more or less swelling of the joint.

"An autopsy of the rabbits which had died somewhat slowly showed the existence of endoarticular and pericardial exudates and endocardial vegetations. The microörganism, when inoculated into a rabbit, was detected in the heart of the animal, while the endoarticular and pericardial exudates proved amicrobic. The subcutaneous injections were never found to possess any pyogenic action.

"We had, therefore, a microörganism which, while morphologically it could be confused with the streptococci, was yet distinctly differentiated from the latter biologically. It occurred under such conditions as proved it to be the pathogenic agent of rheumatic infections, for the following two reasons:

"*First,* it could not be detected in cases of *atypical arthritis.*

"*Second,* it was evidently the cause of a really *previous* spontaneous contagion.

"Here is what happened. Some healthy rabbits were placed in cages which had lodged infected rabbits, and in all such cages an epidemic of *exudative arthritis* developed which affected eight rabbits.

"Five of these animals supplied the material for a very interesting bacteriological test, which led to the discovery, in the circulating blood, of the same *staphylococci-form* organism. Inhalations of cultures obtained from the blood of these rabbits caused *quick death,* without any localized lesions. The animals experimented upon were adult rabbits which showed no appreciable focus of infection and from which it was found impossible to obtain by culture the common pyogenes.

"These investigations, conducted with scrupulous care for about two years, certainly justify me in attributing the greatest value to the data, supported as they are by extensive and unequivocal observation on human subjects."

These researches, published since 1896, are all that have been submitted to demonstrate the existence of a specifically pathogenic microorganism in typically rheumatic subjects, but they have contributed much toward the advancement of our knowledge of the etiology of rheumatism.

FURTHER EVIDENCE.

That the Streptococcus rheumaticus is the etiologic factor in rheumatism, or that it at least plays an exceedingly important part in the causation of that disease, is apparently shown by early clinical experiments.

Cases of rheumatism treated with basic Phylacogen containing either none of the metabolic derivatives of the Streptococcus rheumaticus or but a small quantity of them, though they showed some improvement, did not terminate in a decided or permanent cure. When the Streptococcus rheumaticus was grown on a suitable medium and the sterile filtrate was added in equal quantity to the basic Phylacogen, the administration of the mixture almost invariably produced such rapid and decidedly beneficial results as to leave no doubt in the minds of those witnessing the experiments that the Streptococcus rheumaticus filtrate was an essential factor in the curative process.

DIAGNOSIS.

THE SUCCESSFUL APPLICATION OF PHYLACOGENS (SCHAFER) DEPENDS UPON A CORRECT DIAGNOSIS.

In treating rheumatism the physician should realize the necessity of making a correct diagnosis *before* treatment is instituted. *In no other condition are so many errors liable to be made* for obvious reasons.

Cabot says: "Rheumatism has sometimes turned out in my experience to mean aortic aneurysm, cancer of the pleura, tabes dorsalis, osteomyelitis, spondylitis deformans, bone-tuberculosis, syphilitic periostitis, lead-poisoning, morphine habit, alcoholic neuritis, trichiniasis, and gonorrheal infection. 'Rheumatism' is one of the most dangerous of all diagnoses to the conscientious physician" (40).

True rheumatism *must* be differentiated from septic arthritis, tubercular arthritis, gonorrheal arthritis, traumatisms, syphilis, etc.

The complement fixation test (46) affords a means of proving or eliminating a gonorrheal etiology. The Wassermann test affords great aid in proving or eliminating syphilis, and the *x*-ray throws much light upon diseases of bones and joints that are not easy to diagnose. The various tuberculin tests should also be employed. All the modern aids to diagnosis should be used if one is to safely rely upon his diagnosis.

We have received a report of a case of fracture of the fibula that was called rheumatism. The most common error is to mistake gonorrheal arthritis for rheumatic arthritis. Another common mistake is the diagnosis of tuberculosis, especially of the joints, as rheumatism. A third common error is diagnosing syphilitic manifestations as rheumatism. It is plainly evident that "rheumatism" is, as Cabot states, "one of the most dangerous of all diagnoses," and a large percentage of the so-called failures to obtain relief from rheumatism with Rheumatism Phylacogen has been due to error in diagnosis.

In one instance a case of arthritis was diagnosed as acute articular rheumatism because it suddenly developed with great pain, redness and swelling. The patient was first treated with Rheumatism Phylacogen without result, then with Gonorrhea Phylacogen without result. The case proved to be one of tubercular arthritis. This illustrates in a striking

manner the difficulty occasionally encountered in making an accurate diagnosis except by the process of elimination with one or more of the Phylacogens. The failure of one Phylacogen, if properly administered, indicates that the diagnosis is incorrect, while the clinical experiments with the several Phylacogens have shown conclusively that if the right Phylacogen be applied, successful results will be obtained.

The possibility of a broken arch (flatfoot) causing pain, especially in a patient with a previous history of rheumatism, should not be overlooked.

Cases are on record in which patients suffering from chronic rheumatism have been treated with Phylacogen, and although they appeared to have been greatly benefited the pain persisted in the feet and ankles. In two such cases the Phylacogen was considered a failure for these reasons, but *x*-ray examinations and examinations by orthopedic surgeons disclosed in each instance the fact that the arch was broken down. The use of the proper steel insoles and other appliances resulted in immediate disappearance of the pain. This condition, of course, should be borne in mind when cases of rheumatism of long standing are treated.

Another important point in the treatment of chronic rheumatic conditions is the necessity for continued treatment, possibly for three or four weeks. Of course, if the patient does not show continuous though slight improvement, treatment should be discontinued and a careful re-examination made, so that the exact pathological condition may be determined.

Although the clinical features of some cases of acute rheumatism are very definite, in others they are not, and there is a possibility that some cases of arthritis with an elevation of temperature are too hastily considered to be cases of rheumatic fever; for it must be remembered that arthritis may be brought about not only by the rheumatic diplococcus but by many other organisms.

Acute rheumatism in young children is often most difficult of recognition. Joint pains are frequently of trifling severity, and, if not completely overlooked, their significance may not be fully realized by those in charge of the child. Visible evidence of synovitis may be absent altogether, or may consist of transient swelling and redness, perhaps limited to a single joint. At the same time there may be a progressive endocarditis or myocarditis, unattended by distinctive symptoms but destined to prove the starting-point of a life-long incapacity (41).

Poncet says: "In the presence of rheumatism the first thing we should do is to demonstrate that it is not tubercular; knowing the frequency of tuberculosis and tubercular rheumatism, we should think pathogenetically rather than pathologically."

The prognosis of tubercular rheumatism has to be considered from two points of view—with respect to the rheumatic process and with respect to the tubercular process which accompanies or produces it.

The prognosis is variable with regard to the rheumatism (42).

Chronic tubercular rheumatism is encountered more frequently in the second period of life, and may be primary, or secondary to repeated attacks of acute tubercular rheumatism. Four clinical varieties are distinguished: deforming tubercular polyarthritis; chronic polysynovitis; dry senile arthritis; ankylosing tubercular rheumatism. These may occur independently or may be found co-existent in the same individual (43).

Acute tubercular rheumatism is characterized by the rapid involvement of one or several articulations, giving rise to a more or less perfect picture of an acute rheumatism; it may be primary, or secondary to a visceral tuberculosis. From the nature of things the primary form is exceedingly difficult to diagnose. A grave general condition with a moderate involvement is presumptive evidence of tubercular rheumatism (44).

A complete bibliography of tubercular rheumatism, up to July, 1903, will be found in Poncet and Leriche's monograph, *Le Rhumatisme Tuberculeux,* L'Ouevre Medico-Chirurgicale, Critzman, No. 34, Masson et Cie., Paris, August, 1903. Data covering the period from August, 1903, to March, 1909, will be found in Poncet and Leriche's book, *Le Rhumatisme Tuberculeux,* Octave Doin et Fils, Paris, 1909. Poncet and Leriche are shortly to publish a volume entitled "La Tuberculose Inflammatoire" (45).

DOSAGE OF RHEUMATISM PHYLACOGEN.

The initial (first) dose of Rheumatism Phylacogen should be given *subcutaneously,* invariably, to develop any individual idiosyncrasy that the patient may possess. NEVER give the first dose of Phylacogen in the vein.

SUBCUTANEOUS.

The subcutaneous dose of Rheumatism Phylacogen for the average adult (see section on "Age of Patient") is from 1 or 2 Cc. to 10 Cc., administered daily as a rule (see section on "Interval Between Doses"). Beginning with 1 Cc., the subcutaneous dose may be increased on the second day to 2 Cc., and by 1 or 2 Cc. daily thereafter, until the patient is relieved of all symptoms.

If the systemic reaction following the initial subcutaneous dose is not pronounced, and the patient is in a grave condition, it is suggested that, in the absence of *contraindications* (see "Contraindications"), the dose may be repeated in eight or twelve hours. If the initial dose is 1 to 2 Cc., the second dose, if given in eight hours, should be 1 to 2 Cc., the third dose the same, and the fourth 2 to 4 Cc. As a routine procedure, in the average case, the interval between doses should be twenty-four hours if the systemic reaction has disappeared, otherwise the interval is lengthened until the reaction has disappeared, as evidenced by the pulse rate returning to the rate observed previous to the last injection, or nearly so.

INTRAVENOUS.

The *intravenous* dose of Rheumatism Phylacogen for the average adult (see "Age of Patient") is from ⅛ Cc. to 5 Cc., administered daily as a rule (see "Interval Between Doses").

If the Phylacogen is to be administered *intravenously,* the initial dose must always be given under the skin and not in the vein (see above), then the first *intravenous dose* (the second actual dose) is ⅛ to ¼ Cc., second dose ¼ to ½ Cc., third dose ½ to ¾ Cc., fourth dose 1 Cc., fifth dose 2 Cc., sixth dose 3 Cc., etc. If the Phylacogen is to be administered intravenously in a dose of 1 Cc. or less, it will be more convenient to dilute it with sterile water or sterile physiologic salt solution to a *more easily handled* volume; for instance, enough salt solution may be used to make the *total* bulk (no matter what the dose of Phylacogen may be) at least 1 or 2 Cc. For instance, if 2 minims are to be given, add sufficient salt solution to make the total bulk of the injection 1 or 2 Cc. of the mixed fluid. A convenient method of doing this is to draw into the syringe a certain amount of salt solution and then enough Phylacogen to make the total bulk 1 or 2 Cc. (See "Technique of Intravenous Injections.")

INTERVAL BETWEEN DOSES.

The usual interval between doses is twenty-four hours. In some instances the injection of the Phylacogen may be followed by prostration and intense local and constitutional reaction. In such cases it has been the practice to allow a longer interval than twenty-four hours (36 to 72 hours) to elapse before the next dose is given, so that the patient may *entirely recover from the effects of the previous injection.* When patients react very vigorously to the Phylacogen it is desirable to extend the usual interval of rest between doses; but if *too* long an interval elapses before resumption of treatment, the case will probably relapse. This should be understood thoroughly. The pulse rate is believed to be a good guide in regulating the interval between doses. (See page 40, section 6.)

COMMENTS UPON DOSE REGULATION.

1. *Interrupted Treatment.* In chronic rheumatic arthritis, when the patient shows improvement after two or three doses of Phylacogen, if the Phylacogen be then withheld for a day or two, or if the dose be diminished, the patient may retrograde and the case relapse to its former condition. Such infections are difficult to treat, and unless the patient is treated thoroughly no permanent beneficial result is secured.

2. *No Result.* In some cases little result will follow even large doses of Phylacogen (5 to 10 Cc.) given subcutaneously. Clinical experience in *such* cases has been that 1 Cc. *in the vein* will lower the temperature to normal or subnormal, with a decided amelioration of other symptoms, as pain, swelling and immobility of affected part. These improvements will

be observed only *after* the subsidence of the systemic reaction. Subsequent doses should be given in such cases in the manner and amount previously described.

3. *Effect of Excessive Dosage.* When large doses, or doses that were large for the patient under treatment, had been given, it was not unusual in the experimental work to witness decidedly pronounced reactions. For instance: in the course of thirty minutes to an hour the patient would begin to have a chill that progressively increased until it assumed the proportions of an extreme rigor.

The appearance of the patient at such a time is decidedly alarming to those who have never witnessed the phenomenon before and who do not corrctly interpret the situation. The patient's body will shake so vigorously that he appears to be having a convulsion. The chill may reach its climax in thirty to forty-five minutes, then gradually decreasing until the muscles cease their involuntary activity. The duration of the chill, or rigor, from beginning to cessation may be two to three hours in extreme cases. During this time the temperature will rise from one to four degrees, and in one very remarkable instance it rose ten degrees. Coincidently the pulse may become very rapid and frequently thin. Pulse rates of 160 and even higher have been observed.

The blood-pressure rises sharply soon after the injection, but within a few minutes it begins to fall, and so continues until it reaches several points below that observed before the injection was made. At the conclusion of the rigor the temperature frequently falls to subnormal. Sometimes the patient is pulseless at the wrist; or he may be in what appears to be a very weak condition, without strength, perhaps bathed in perspiration, pale, and with a rather pinched expression around the nose and mouth. In other words, all the physical signs of shock or "collapse" are manifest. This extreme reaction, if the patient was injected subcutaneously, may be explained in either of two ways:

a. By assuming that a vein was accidentally punctured and that a quantity of Phylacogen (not necessarily all of the injection) entered the vein under comparatively high pressure. Even the slowest subcutaneous injection would greatly exceed in speed the rate at which an intravenous injection should be made.

b. The other explanation is that the full and definite therapeutic effect of the Phylacogen was not obtained until the patient had received in successive doses a sufficient quantity to develop the systemic reaction, all the material entering the blood by the subcutaneous route.

4. The dose of Phylacogen for a child from one to ten years of age should be one-half to three cubic centimeters, subcutaneously. The first dose being fairly well borne, the amount may be increased by ½ to 1 Cc. for each succeeding injection. An infant can be safely injected subcutaneously with ½ Cc. of the Phylacogen.

5. The occasional failure to secure good results by the subcutaneous injection of even large doses of Phylacogen should be borne in mind. In such cases it has occasionally happened that the injection of a small dose intravenously has been followed by an immediate specific result, and rapid cures have been obtained in cases in which large subcutaneous doses of Phylacogen had previously been given without apparent effect.

6. No hesitancy need be felt in reinjecting at the end of twelve hours if the pulse has resumed the rate observed before the last previous inoculation. It is believed by Dr. Schafer that the pulse rate will eventually prove to be a very reliable guide in the administration of Phylacogen.

7. As Phylacogen may act differently in different patients, or as different patients may react differently to Phylacogen, it is important that the physician carefully note the reaction following the first intravenous injection, the better to enable him to judge the size of the succeeding doses. One of the most important points in estimating the size of the second dose is the group of symptoms that arise during the first reaction. A satisfactory reaction is evident when a decided chill occurs, but with little or no difficulty in breathing.

8. The occurrence of cyanosis, although usually insignificant, is not desirable. It probably indicates too great circulatory disturbance, and in many cases is due entirely to the excessive rapidity of the injection.

9. Although at times the reactionary rise in temperature may be so high as to prove alarming to those inexperienced in the use of Phylacogen, it accompanies the treatment in nearly all the favorable cases.

10. Free perspiration is favorable, as it helps to eliminate toxins and relieves the kidneys of much work; following profuse perspiration there should be a marked improvement in the patient's condition.

11. In the feeble and aged, as well as in the young, the size of the dose should be reduced accordingly.

12. In very exhausted patients and in desperate cases the initial dose should be very small, and increased as tolerance is established.

13. As will be seen, there is a wide range of dosage within which the Phylacogens are therapeutically efficient, so that by making it a rule to inject at first a relatively small dose the patient's safety is assured.

14. When beginning the treatment in a hospital or in any locality where the Phylacogen has not been used, physicians should recognize the desirability of selecting cases that are *not* complicated. The results will more clearly demonstrate the specific character of the treatment than if the cases are clouded with complications.

15. It is frequently difficult for physicians to see the necessity of injecting mild cases when Phylacogens are indicated, and thus bringing about rapid cures. Some physicians still insist on using this treatment only in extreme cases, with a major infection.

16. If the patient does not react and have a chill after ½ Cc. of Phylacogen has been administered *intravenously,* the conclusion should be

either that the vein has not been entered or both walls of the vein have been perforated and the Phylacogen deposited in the tissues on the opposite side of the vessel.

17. If the site of an intravenous injection is tender or inflamed at the expiration of twelve to twenty-four hours, some of the Phylacogen has escaped into the tissues surrounding the vein. In rare cases patients will not have a chill even when large subcutaneous doses are given; yet such patients may make a satisfactory recovery.

18. The occasional occurrence of a low temperature after intravenous medication—as low as 98° or 96°—makes it necessary to remind physicians that such low temperatures are not of themselves of serious import.

19. The attendant should think of the possibility of sudden death occurring in patients with grave heart lesions who have apparently recovered from the condition for the relief of which the Phylacogen was administered, and who may have been treated previously with Phylacogen. Even physicians of experience when confronted with a case of this character do not always stop to reflect that sudden death does sometimes occur after apparent recovery under any method of treatment.

20. Senile cases of rheumatic infection may be treated unless demonstrable cardiac lesions are present, or there is lack of compensation, with endocardial complications.

TREATMENT.

In the treatment of rheumatism, what is necessary?

1. Endeavor to cut short the course of the attack and the danger-period during which there is risk of cardiac complications. 2. Relieve the joint pains and other distressing symptoms. 3. Meet any complication that may arise, and be ready with the indicated treatment. 4. Guard against the danger of relapse, by prolonging the treatment beyond the period of symptoms and by special supervision during convalescence. 5. Insist upon rest in bed and a milk diet, with unsweetened lemonade or barley-water containing 20 grains of potassium bicarbonate to the pint. 6. Administer Phylacogen. Combat the effects of the toxemia from the infecting organisms.

It is a point of the greatest importance that the Phylacogen treatment be continued at least ten days after the disappearance of all acute symptoms. Many relapses arise from a neglect of this practice and, more serious than relapse, a cardiac lesion crippling the heart for life may result from the too early discontinuance of the treatment.

The relief afforded by Phylacogen is usually so prompt that no special local treatment of the joints is required.

As to supplemental measures, there can be no dispute as to the value of eliminative treatment; every organ should be made to do its duty, and

that thoroughly. As to diet, common sense should rule. If certain foods cannot be digested well, they should be eliminated. To say that one article of food causes rheumatism, or predisposes to it, seems unscientific. To say that it causes indigestion with a consequent growth of bacteria, interference with metabolism, and absorption of toxins, would be more rational.

Occasional reports are received of decided aggravation of the rheumatic symptoms in patients treated subcutaneously. In two such instances the patients were quickly relieved of the symptoms and apparently cured by the substitution of small intravenous injections.

PERMANENCE OF RESULT.

Experience seems to warrant the statement that cases of rheumatism dismissed as cured, following the administration of two, three, or four doses of Phylacogen, of as much even as 10 Cc. at a dose, *may* relapse in a short time and require reinstitution of treatment. A few of the first patients were discharged after three or four injections because of a total disappearance of all symptoms, which misled the attending physicians into the belief that miraculously sudden and complete cures had resulted. It now seems to be clearly established that, notwithstanding the complete disappearance of symptoms, to insure the permanence of the cure and to prevent relapses the patient must remain under treatment for at least ten days, receiving each day one or more injections of the maximum dose.

Are the results from the Phylacogen treatment of rheumatic infections permanent? Rheumatism Phylacogen has been in the hands of the medical profession a trifle over two years, and sufficient evidence has accumulated to warrant an opinion as to the permanency of the results of the Phylacogen treatment. Herewith are presented brief abstracts of eleven case histories from prominent physicians, the cases having been kept under observation for a number of months. These reports furnish substantial evidence of the permanency of the curative results following the use of Rheumatism Phylacogen. One patient has remained absolutely well for two years (case 1); another, ten months (case 4); two, one year (cases 6 and 7); and one, eleven months (case 9).

Case 1.—Attending physician, Dr. V. D. H. Private practice. Patient, Dr. Wm. DeLaB., aged 40 years; married; occupation, physician.

History: Had articular rheumatism for the greater part of five years; never free from pain, and laid up at short intervals for three to six weeks at a time with acute exacerbations. Rheumatism affected mostly the joints of the extremities.

Treatment: In 1910 Dr. H. obtained some experimental Rheumatism Phylacogen from Dr. Schafer. Dr. DeLaB. was at that time confined to bed with an acute attack of several weeks' standing, gradually getting worse. Treatment with Rheumatism Phylacogen was begun with 5 Cc. subcutaneously, doses gradually increased to 10 Cc.: about 60 Cc. in all. Complete cure; cessation of pain after three or four injections.

Conclusions: No rheumatism for over two years. (C 421.)

Case 2.—Mrs. L., aged 18 years. Attending physician, Dr. R. E. B. Diagnosis, myalgia and arthritis.

History: Presented with right knee and thigh involved.

Treatment: Rheumatism Phylacogen, 5 Cc. subcutaneously for four doses.

Result: Cure. Well four months later. (C 460 and C 4.)

Case 3.—Attending physician, Dr. E. H. E. Private practice. Mrs. C. E., my mother, aged 53 years; married; occupation, housewife.

History: Troubled with rheumatism for twenty years. Never had any acute articular involvement or acute exacerbations, except lumbago. Laid up with it three or four times a year, from five to ten days. Repeated tonsillar infection. Complained of arms "going to sleep" and legs paining, especially at night. Unable to stay awake evenings or stay asleep after 3 or 4 A.M. Some deposits in joints of fingers, which were so stiff she could not thread a needle.

Diagnosis: Chronic muscular rheumatism with attacks of lumbago.

Treatment: Rheumatism Phylacogen. Initial dose 1 Cc. Dose gradually increased to 4½ Cc., given every two or three days. No reaction except once, when dose was immediately reduced. In all 60 Cc. given.

Patient lost about 15 pounds during treatment, but said she felt better after the first dose. Soreness and stiffness all gone; fingers freely movable, can sleep nights. Occasionally slight muscular pain of a transient nature. Reported two months after conclusion of treatment. Says she has not felt so well or been so "limber" for twenty years. (C 3 and C 422.)

Case 4.—J. C., aged 45 years. Attending physician, Dr. R. E. B. Private. Diagnosis, cephalodynia of eight months' standing.

History: Salicylates had been given for some little time without relief.

Treatment: Three injections of Rheumatism Phylacogen given subcutaneously at daily intervals (2 Cc., 2 Cc., 4 Cc.). Absolute cure. Well ten months later. (C 1.)

Case 5.—J. P., aged 40 years. Attending physician, Dr. J. P. S. Private. Diagnosis, chronic articular rheumatism.

History: Has had repeated attacks of rheumatism for the last eleven years. All kinds of treatment were tried without much benefit. Both knees and ankles involved.

Treatment: Was given eight subcutaneous injections of Phylacogen of 5 Cc. each. Result, a complete cure. Able to sleep the whole night for the first time in six years. No return to date, six months later. (C 467.)

Case 6.—H. L. K., aged 27 years. Attending physician, Dr. R. E. B. Private. Diagnosis, chronic arthritis.

History: Left shoulder involved for six months.

Treatment: Twenty subcutaneous injections of Rheumatism Phylacogen were given during a period of three months, the dose ranging from 2 to 8 Cc., average 5 Cc. Result, cure. Still well one year later. (C 465.)

Case 7.—Miss E. C., aged 30 years. Attending physician, Dr. R. E. B. Private. Diagnosis, acute arthritis.

History: Ankles, knees and elbows involved.

Treatment: Fifteen injections of Rheumatism Phylacogen subcutaneously during a period of five weeks. Dose 2 Cc., increasing to 5 Cc. Absolute cure. Well one year later. (C 464.)

Case 8.—Mrs. S., aged 45 years. Attending physician, Dr. R. E. B. Private. Diagnosis, subacute arthritis.

History: Trouble began in right elbow joint.

Treatment: Salicylates given for three months by family physician without relief. Hearing of results obtained from Phylacogen, came to me for this treatment. Twelve injections of Rheumatism Phylacogen subcutaneously, beginning with 2 Cc. and increasing to 5 Cc. A complete cure. Well six months later. (C. 463.)

Case 9.—H. G., aged 25 years, chauffeur. Attending physician, Dr. R. E. B. Private. Diagnosis, acute arthritis. Temperature 103°, pulse-rate 100. Very severe pain, beginning in left knee.

Treatment: Rheumatism Phylacogen 2 Cc. subcutaneously with almost immediate relief from pain. Fourteen daily injections in all were given, the dose being gradually increased to a maximum of 12 Cc. A small amount of Mixed Infection Phylacogen was included in each injection. Treatment did not seem to shorten the course of the so-called rheumatic fever, but did afford absolute relief from pain. The disease ran the usual course, all articulations being involved at some time. Characteristic heart lesion (endocarditis) last two weeks. Still well eleven months from time of last injection. (C 462.)

Case 10.—Mr. C., consultation case, reported by Dr. R. E. B. Diagnosis, arthritis of right knee.

History: Presented a condition of arthritis involving right knee of five years' standing.

Treatment: Rheumatism Phylacogen advised and given. Details of treatment not known. Letters from daughter stated that her father had recovered completely and was still well three months later. (C 461.)

Case 11.—C. C., aged 40 years. Attending physician, Dr. R. E. B. Diagnosis, subacute arthritis involving both knees.

Treatment: Rheumatism Phylacogen 2½ Cc., in each leg below knee, subcutaneously. Local reaction quite severe. Tendons very sore and patient could not walk.

Very effectively cured of all symptoms of rheumatism. Well five months later. (C 459.)

RHEUMATIC ARTHRITIS.

Daniel (50) is emphatic in his statement that, except as a result of trauma, arthritis is only a symptom of a disease whose real nidus is in some distant part of the body. He also emphasizes the statement that arthritis may be secondary to a disease in some other part of the body years after the subsidence of the primary infection. He has found that by far the commonest source of arthritis is sepsis in the oral cavity, a fact to which all experienced clinicians now subscribe. As to the toxic arthritis, he regards a microörganism as the real cause of the trouble in every case. The joint symptoms are merely a local manifestation of a systemic infection or a localized infection in some other part of the body.

SPECIMEN CASES ABSTRACTED FROM OUR RECORDS, ILLUSTRATING THE USE OF RHEUMATISM PHYLACOGEN IN RHEUMATIC ARTHRITIS.

Case 1.—Mrs. B. S., 50, housewife, with a negative history as to previous attacks of rheumatism, early in April was confined to bed, with joints painful, swollen, and inflamed. The ankle, knee, wrist, elbows and shoulders became ankylosed. Her temperature was 103°; she was unable to take nourishment, and was almost moribund. There were evidences of an old chronic bronchitis, also of pericarditis with mitral regurgitant murmur.

The usual rheumatic treatment was carried out, and about the first of May she was given up by attending physicians.

On May 3d she came under my care, and I gave her the first subcutaneous injection of 5 Cc. of Rheumatism Phylacogen. This was followed by nausea, diarrhea, and a severe chill. The patient rebelled at taking the second dose, but finally consented. The second injection (5 Cc.) was given subcutaneously forty-eight hours after the first, with the same reaction and with an increase of temperature from 103° to 104°. The third injection (10 Cc. subcutaneously)

was given on May 7th, with the same reaction. Improvement was noticed, there being less pain and the swelling being much reduced. The fourth injection (10 Cc. subcutaneously) was made on May 10th. The reaction was not severe, but the patient was much encouraged and was able to move the joints more freely. The fifth injection (10 Cc. subcutaneously) was given on May 11th. There was a marked improvement and less reaction, though the patient experienced a little dizziness. The sixth injection (20 Cc. subcutaneously) was given on May 15th. The reaction was about the same as that following the first one, but there was no chill. Forty-eight hours afterward the patient was sitting in a chair, the joints freely movable, no pain or swelling.

Two days later I saw the patient out in the garden and apparently well. A month after I again saw her. She had experienced no further trouble, and I now consider her absolutely cured. (M 905.)

Case 2.—Woman, aged 47. Had suffered recurrent attacks of articular rheumatism for eight years, affecting all the joints of the lower extremities and arms, each attack being more severe than the previous one. For the last five months patient was unable to walk. Was treated at Hot Springs for thirty days, during which time she lost 20 pounds in weight and was sent home as a hopeless case, weighing 73 pounds, and was told that she had "tuberculosis of the bone." Upon reaching St. Louis the case came into the hands of Dr. ——. He excluded tuberculosis in his diagnosis and put the patient on Rheumatism Phylacogen treatment, which was followed by the typical reaction and a gradual improvement. In all, 90 Cc. of Phylacogen were administered, the last 30 Cc. being given as a precaution against relapse. In addition to the disappearance of all rheumatic symptoms the patient is making marked improvement in her general health. She has been discharged and is now visiting in the country to recuperate. This case is remarkable in view of the fact that it was considered hopeless. (M 859.)

Case 3.—Boy, aged 16. Chronic articular rheumatism of four years' standing, involving every joint of the body. Contour of joints obliterated by swelling. Forearms fixed at right angles. Patient confined to bed with every change of weather. Suffered severe pain, loss of appetite, poorly nourished, anemic, no energy or ambition, could not pursue studies at school. Case was treated during the past few years by leading physicians of St. Louis without special benefit. Put on Rheumatism Phylacogen, 60 Cc. being given in seven injections. Marked reaction followed each injection. Pain disappeared and joints were movable after the fourth injection. Patient now free from all rheumatic symptoms, is out of bed, has good circulation, and eats five or six times a day. The family looks upon the cure as miraculous. The physician says the reaction of Rheumatism Phylacogen is something wonderful, and that it is gratifying to see how rapidly the patient regains normal health, whereas when the salicylates are given it requires months to free the system of the accumulated toxins and to correct the gastric disturbances due to the medication. (M 865.)

Case 4.—Woman, aged 55, suffering from subacute articular rheumatism, with a history of recurrent attacks for the past seven years. The present attack extended over eight months with total disability. The patient was taken to Hot Springs on a cot and came back in the same condition. Before treatment she was confined to bed, and the right arm, which was flexed, could be raised only a little. The treatment consisted of 60 Cc. Rheumatism Phylacogen administered subcutaneously; first dose 5 Cc., five following doses 10 Cc., seventh dose 5 Cc. Treatment was followed by typical reaction, beginning with the first dose and diminishing after the fourth. After the fourth injection the patient slept, and on waking found that she had recovered the use of the right hand and was able to hold a comb and dress her

hair. After the seventh injection she was free from all rheumatic symptoms and was able to make a railroad trip to her home, unattended. She contemplated taking a few more doses with a view of preventing recurrent attacks. Her general health was very much improved. Patient thinks Rheumatism Phylacogen is a blessing to mankind. (M 839.)

Case 5.—Woman, aged 60. Diagnosis, chronic articular rheumatism. Patient had been in bed the greater part of the past two years, able to sit up only at times. Had just returned from Hot Springs with very little improvement. Both lower limbs flexed. 60 Cc. Rheumatism Phylacogen administered as follows: first dose 5 Cc., followed by a slight reaction; five subsequent doses of 10 Cc., with typical reaction. The improvement was general and resulted in the total disappearance of all pain, though a slight ankylosis of the right knee remains. The patient enjoyed fairly good health before the treatment, but since the treatment her general health is much improved. The physician contemplates giving additional Rheumatism Phylacogen with the view of overcoming the ankylosis. Patient is greatly pleased with the results. The physician is highly elated over his success, which is the talk of the town. (M-840.)

Case 6.—Woman, with subacute articular rheumatism, recurrent for the past two years. Present attack extended over six weeks, with continual pain; general health poor. 60 Cc. Rheumatism Phylacogen administered in 5- and 10-Cc. doses subcutaneously. There was a gradual increase in reactions up to the third and fourth doses, after which they gradually decreased. Decided improvement after fourth dose. At the end of treatment patient was discharged cured, and her general health was much improved. Patient states that she did not think it possible to effect such a remarkable cure as was obtained in her case. (M-841.)

Case 7.—H. L., American, married, aged 28; clothier. Had affection of throat for the past six months. About four weeks ago first began to complain of systemic involvement, stiffness and muscular pains. Regular treatment for four weeks gave no relief. Admitted for Phylacogen treatment April 4. Six daily subcutaneous injections given; first injection 5 Cc.; second, third, fourth and fifth, 8 Cc. each; and sixth, 10 Cc. Following third, fifth and sixth injections patient had distinct chill that came on from one to two hours after the injection and lasted one-half to three-quarters of an hour. Reaction after sixth dose was positive, with temperature 104°, respiration 28, pulse 124. This treatment was given at 4 P.M. Patient passed a very restless night, with cramping of stomach and bowels; tendency to constipation. All through treatment cathartics were resorted to. Cramping and pain subsided after physiological salt solution enema, followed by free movement of bowels. All pain and stiffness disappeared on fifth day. Recuperation was rapid, and on April 12th patient returned to his work completely cured. Has gained in weight since, with pharyngitis also completely cured. Patient highly pleased, with a good word for Phylacogen to every one. (M-837.)

Case 8.—Mrs. E. C., 34, married, housewife, had a "bilious attack" in November, 1911, followed in a short time by pain in the joints, especially of hands and feet, elbows and shoulders. Regular treatment gave temporary relief, and patient was able to ride out. In the following March she suffered a relapse and was confined to bed. This time the regular treatment gave no relief, but she grew steadily worse and could not raise her hands to her head. The joints of the left arm stiffened completely, with great pain all the time. Diagnosis, subacute articular rheumatism. In this state of health she was admitted for the Phylacogen treatment, May 5th, and received an initial subcutaneous injection of 5 Cc., followed by daily subcutaneous injections of 10 Cc. each. At this time the joints were stiff, inflamed, red and swollen. This patient had been a sufferer from angina pectoris for the

past two or three years. The reaction following each treatment was excessive, including high fever and rapid pulse and respiration. Following the fifth treatment patient had a severe attack of pain in the heart region. After this the reaction following the injections was slight, and there was none after the last. The patient made a slow but sure improvement, and is now quite well and does her own work. This case indicates that the treatments are not injurious to heart action; the angina was apparently benefited. (M-838.)

Case 9.—Woman of 64; had rheumatism eight years, mainly involving the right knee and ankle; otherwise in good health. No specific history. Had taken the hot-water baths and anti-rheumatic treatment six weeks with very little result; still on crutches. Phylacogen treatment was decided upon; 10 Cc. was given every other day until 60 Cc. had been administered. The first reaction was the most acute, nausea, vomiting, temperature 102°, and pain at the site of injection. The reactions grew less severe after each dose, with practically none after the last. Pain was relieved after second injection, when patient discarded her crutches. After the sixth injection she was dismissed as cured. The physician said he very seldom used the word "cured" in the Springs, but he certainly used it in this instance with all emphasis. As the six weeks' treatment prior to the use of the Phylacogen had done the patient so little good the physician did not intend to ask for a fee, but because of the gratifying results from the Phylacogen he was rewarded very handsomely. (M-870.)

Case 10.—The patient, a man of 30, had acute articular rheumatism; all joints involved; joints badly swollen; knees swollen to the size of a man's head. Floating patellæ looked as if operation would be necessary. The pain was so severe that any slight noise or jar, walking across the room, or touching the bed, would immediately throw the patient into paroxysms. Temperature ranged from 102° to 104°. Rheumatism Phylacogen was given—5 Cc. the first day, followed by chills, rise in temperature, and slight perspiration; 7½ Cc. second day, followed by increased reactions with profuse perspiration and slight occasional relief from pain; 7½ Cc. third day. Following this injection all pain and swelling disappeared. Three more doses (of 10 Cc. each) were given—on the fourth, fifth and sixth days—followed by relief of all symptoms excepting some soreness in left shoulder and some stiffness of muscles and neck. Dr. R. insisted on using two more bulbs of Rheumatism Phylacogen, but patient thought he could "wear it off." Patient went to work at the end of the week, and no symptoms of recurrence were noticed excepting pain in the same shoulder; this increased, and in two weeks other pains came back, with several other joints involved. Patient was injected again, with disappearance of all symptoms. (M-816.)

Case 11.—This patient, a woman, aged 24, was brought to the hospital absolutely helpless from muscular rheumatism of six months' standing. She had a bad heart. About everything known in medicine had been tried on her without benefit. An initial dose of 5 Cc. Rheumatism Phylacogen was given, followed by 10-Cc. doses on the second and third days. After the third dose a decided improvement was noticed; 10 Cc. was administered on the fourth day, and the reaction was very severe. On account of the poor condition of the heart it was deemed advisable to reduce the dose. Five Cc. was given subcutaneously on the fifth and sixth days. On the seventh day the patient insisted on going home in spite of the rain falling at the time. In two weeks' time, as a safeguard, Dr. M. sent for the woman to come back to town, gave her two more injections of Rheumatism Phylacogen of 5 Cc. each, and then discharged her as cured. The patient made the remark to one of the nurses after the Doctor had gone that she felt like dancing, and suiting the action to the word forthwith waltzed around the room.

Since then she has attended to her household duties entirely free from rheumatic pains. (M-795.)

Case 12.—Farmer, aged about 40, had been having attacks of subacute articular rheumatism two or three times a year for some time past. On the last occasion his physician told him of a new treatment for rheumatism which had been giving wonderful results, and advised him to take it because it offered good prospects for a permanent cure, provided he stopped his periodical indulgence in whiskey. The man, a hard drinker, agreed to take the treatment. He received 5 Cc. Rheumatism Phylacogen for the first dose, 10 Cc. for the second, third and fourth, 15 Cc. for the fifth, and 10 Cc. for the sixth. The reactions were quite severe after the second and third injections. One feature of this case was that the Phylacogen started a pronounced diarrhea. The case progressed very nicely all the way through. The patient was free from pain after the sixth injection. Now, two months afterward, he says he feels better than he has for years; no more rheumatism pains; says he can pitch hay as good as the next man; he irrigates his ranch, gets his feet wet, and it doesn't bother him. He has been on one big "tear" since his treatment. The patient and the physician are highly pleased with the effect produced in this case by Rheumatism Phylacogen. (M-798.)

Case 13.—Man of 33, with his fourth attack of acute articular rheumatism. In the three previous attacks he was treated by same physician and in no instance was he able to leave the hospital in less than six weeks, although all known methods of treatment had been tried. In each instance all joints were involved and the patient always suffered intense pain, so much so that it was necessary to use barrel staves to keep the weight of the bed covering from the limbs and feet. The patient was absolutely helpless within twenty-four hours after the onset of the present attack, and suffering intense pain in all joints. When the patient reached the hospital he remarked to his physician that "they might as well get the barrel staves at once," as he knew he was in for another two months' suffering. He was given an initial dose of 5 Cc. Rheumatism Phylacogen; a moderate chill occurred with the usual reaction, and he slept a little that night. The next day he was given 5 Cc., with about the same reaction, but slept fairly well that night. The third day he was given 10 Cc., followed by very slight chill and moderate reaction; pain much less. The fourth day he was given 10 Cc., with but slight reaction; all severe pain gone, but some soreness remaining in right shoulder and left hand. The fifth day the patient went to the physician's office and was given 10 Cc., the injection being followed by a very slight reaction and relief from all pain. The next day he was given 10 Cc., with practically no reaction, and he went to work the following day.

This patient was treated nearly three months ago and has been working steadily since that time with no symptoms of rheumatic trouble. (M-801.)

Case 14.—This patient, a woman of 22, had been laid up with subacute articular rheumatism of the most severe type for three weeks before Rheumatism Phylacogen was given; all the joints were badly swollen, patient unable to move any of them; pain intense; temperature 102.3°. Opiates were given to control pain and to permit sleep. Large doses of salicylates, 60 to 80 grains daily, were given with no benefit. The patient started in on 5 Cc. of Rheumatism Phylacogen subcutaneously the fourth week; a slight reaction followed the injection—chill, rise in temperature of one or two degrees, and slight perspiration. A dose of 5 Cc. was given the second day, and was followed by a drop in temperature of several degrees, and less pain. Third day, 10 Cc.; increased reaction; patient felt better; temperature 99°. Fourth day, 10 Cc.; patient now free from all pain and able to sleep without an opiate; temperature nearly normal; swelling, however, but slightly reduced. Fifth and sixth days, 10 Cc., followed by

slight reaction; no pain or fever, but swelling of joints still present. Six more bulbs were used, 10 Cc. every other day, and patient was able to leave the hospital completely cured. The attending physician gives all the credit to Phylacogen, as the patient was steadily becoming worse under the salicylates, and as soon as she was placed on the Phylacogen treatment the pain in the joints diminished, entirely disappearing on the fourth day. (M815.)

Case 15.—F. B., 39, a picture-framer, had rheumatic fever nine years ago and for several months was bedridden. The disease recurred later, in mild form.

On April 7, 1912, the patient was found to be suffering excruciating pain in the joints of the fingers, ankles, and knees; the heart was dilated, and there was a systolic murmur and pericarditis, also gastritis and diarrhea, and a temperature of 99°.

Shortly after treatment was begun the patient had an attack of pneumonia (April 10th) with renal complications. A day and a night nurse were secured and a prominent physician called in consultation. The patient was given forty-eight hours to live, and the consultant scouted the idea of vaccine treatment, but gave pneumonia and streptococcus vaccines, a slow recovery following. The patient was seen twice a day from April 7th to May 2d.

During the attack of pneumonia the rheumatic symptoms disappeared entirely, but they reappeared on May 2d. Calls were made every day from May 2d to June 29th, and during this period rheumatic treatment, consisting of sodium salicylates, aspirin, etc., were given, with very little if any relief.

On June 29th Phylacogen treatment was begun and all other treatment stopped. Intramuscular injections of Rheumatism Phylacogen were administered as follows: June 29th, 2 Cc.; July 2d, 4 Cc.; July 4th, 6 Cc.; July 7th, 8 Cc.; July 10th, 10 Cc.; July 13th, 10 Cc.; July 14th, 10 Cc. After each injection there followed a chilly sensation, nausea, headache, depression, and weakness, and the temperature rose two degrees. However, there was a gradual improvement. All pain and swelling disappeared after one week's treatment, and there was no relapse.

The patient has been walking about the park or riding every day and regaining strength. The renal symptoms have disappeared. The result in this case is regarded as a miracle. Everybody is enthusiastic. (M918.)

Case 16.—Male, aged 30, single. Patient in bed, all joints badly swollen and extremely painful; just a touch or the slightest jarring of the bed would send the patient into paroxysms of pain. Temperature 102½°. Slight endocarditis. Diagnosis, acute arthritis. Rheumatism Phylacogen, 5 Cc., given subcutaneously; reaction moderate; chills and rise of temperature to 104°, followed by perspiration. Second day, 15 Cc., followed by marked relief of pain. Third day, 10 Cc., some reaction; however, following this dose all pain, temperature and swelling disappeared. Daily doses of 10 Cc. were administered for five days, for the purpose of preventing recurrence of the symptoms, and the patient was then discharged cured. He is now entirely well and at work. (M794.)

Case 17.—A Scotch lady, aged 55. A case of chronic articular rheumatism; patient had been practically an invalid for years. Unable to sleep at night on account of extreme pain. Rheumatism Phylacogen, 5 Cc., was given the first day, the injection being followed by chills, nausea, rise of temperature of several degrees, and later profuse perspiration. The second day 7½ Cc. was given, with the same reactions as the other two bulbs had produced. Patient is now able to walk and attend to her household work; is entirely free from pain and joint stiffness. This was certainly a remarkable case, the age and condition of the patient and the duration of the malady being taken into consideration. (M812.)

Case 18.—Male, aged 62. Confined to his bed for six months. It seems this man was a victim of an accident last fall while hunting, injuring his knee,

which became suppurative. The wound healed, but several months later he developed rheumatism which confined him to the house for six months. He was put on salicylates "until his ears rang," and as a last resort treatment was instituted with Rheumatism Phylacogen, beginning with 5 Cc. and continuing until 100 Cc. had been given. Usual reactions. Symptoms began to disappear after 40 Cc. had been given, and the patient went on to rapid recovery. I saw him to-day, and he said he would not take $1,000 for what Phylacogen has accomplished for him. Three months have now elapsed and there has been no recurrence. In this case Phylacogen was put to the test and it made good. One cannot do otherwise than admit that there is merit in the Phylacogen therapy. (M947.)

Case 19.—J. A., aged 32, driver. Attending physician, Dr. J. P. S. Private. Diagnosis, subacute articular rheumatism. For the past four months patient has been unable to work because of an acute condition involving his back and the articulations of both legs. Was unable to walk erect when he presented himself. Treatment: three subcutaneous injections of Phylacogen, 5 Cc. each. Complete recovery; able to return to work. (C466.)

Case 20.—Mrs. H. P., aged 45. Attending physician, Dr. J. P. S. Private. Diagnosis, chronic arthritis. Patient had been a sufferer from rheumatism for twelve years; both legs involved. Had an acute exacerbation every five months. No relief for past three months. Five subcutaneous injections of Phylacogen, 5 Cc. each, were given, with complete relief from all symptoms. (C468.)

Case 21.—J. I., aged 52. Attending physician, Dr. J. P. S. Private. Diagnosis, chronic arthritis. For the past 18 years patient has suffered from rheumatism of the gouty type at intervals of four to six months. Had had one course of Phylacogen treatment by another practitioner without apparent benefit. Presented himself with feet much swollen, especially the great toes, and was walking on his heels. Was given six subcutaneous injections of Phylacogen, 5 Cc. each, with the result that he was able to attend to his work and was apparently well. (C469.)

Case 22.—J. H., aged 54, driver. Attending physician, Dr. J. P. S. Private. Diagnosis, chronic arthritis. Patient laid up for the past four months, hands and feet much involved, and nearly all articulations more or less affected. Treatment: Phylacogen, 5 Cc. subcutaneously, six doses. Result, complete cure; patient has gone back to work in apparently perfect health. (C470.)

Case 23.—Mrs. F., aged 44, housewife. Attending physician, Dr. J. P. S. Private. Diagnosis, chronic articular rheumatism. Patient reported a history of rheumatism for the past ten years, involving both knees and ankles. Has been unable to get away from home within the past two years owing to the atrophied condition of the muscles of the legs as a result of the frequent inflammatory attacks. These muscles were hard, and there were more or less numbness and so much pain that the patient could not sleep, except at intervals, during day or night. She also suffered from ulcers of the mouth; unable to take any form of medication by mouth. Her condition was such that only improvement was expected, a complete cure being considered out of the question. Six subcutaneous injections of Phylacogen, 5 Cc. each, were administered. The pain in the limbs disappeared, and the patient became able to walk better and slept all night without interruption. The ulcers in the mouth disappeared during treatment, and the appetite improved. (C458.)

Case 24.—J. T., white, male, aged 60. Attending physician, Dr. W. Diagnosis, abscess of upper lip; acute articular rheumatism. Admitted to surgical ward, April 17, 1912, with abscess on upper lip, and pain in joints; several joints had been involved in rapid succession. Family history negative. Personal history: had usual diseases of childhood; rheumatism more or less constantly during the last fourteen

years. One week ago noticed burning and itching on upper lip, which began to swell and became painful. Four days ago joints began to pain. Pain appeared in the left ankle, then in succession the following joints became involved: left knee, right shoulder, right ankle, right knee, elbows and wrists, and the fingers of the left hand. Heart symptoms negative. All joints involved as above stated. Urine showed considerable albumin. The abscess was surgically treated and completely healed.

June 12th the patient was transferred to the medical ward No. 13 for the treatment of the arthritis. He had taken the salicylates while in the surgical ward, without benefit. Treatment sheet showed that the patient had had urinary suppression which had required turpentine stupes to the region of the bladder. All joints stiff, painful and tender, patient unable to move himself in bed; only very slight motion in the fingers of the right hand; all other joints so tender and painful that motion is impossible. Does not respond to the salicylates or to local dressings.

June 13: 8 a.m., t. p. r. 98°-88-28. Patient lying in bed unable to move a joint except the fingers of the right hand. 1:45 p.m., 10 Cc. Rheumatism Phylacogen subcutaneously; chill lasting 20 minutes, but patient not very sick. 3:45 p.m., 99.4°-98-28; slightly increased pain in joints.

June 14: 8 a.m., 98°-92-24. Patient says he feels better. Has less pain in joints and slight improvement in motion. 2:10 p.m., 5 Cc. Rheumatism Phylacogen intravenously; very intense chill lasting 45 minutes, with great aggravation of pains, headache, vomiting, pain in abdomen and back, cyanosis, involuntary bowel-movements, and marked dyspnea. 4:10 p.m., 102.3°-120-36.

June 15: 8 a.m., 97°-98-28. Patient was quite sick all night. Vomited twice and had two involuntary bowel-movements this afternoon. Still has attacks of dyspnea. Joints much improved, pain much less, motion greatly improved; able to turn himself in bed and help himself. Vomited a clear coffee-colored liquid this morning; is very weak.

June 16: Temperature, pulse and respiration normal. Rheumatism Phylacogen discontinued temporarily, and patient put on caffeine cit. and strych. sulph. Looks much better and is able to move all joints quite freely, with but slight pain in the left knee.

June 20: Arthritic condition continues to improve, and patient's general condition is much better. Has marked herpes about the lips, on the tongue and in the nose.

June 22: 8 a.m., 98.3°-84-20. There is still slight stiffness and some pain in the left knee, otherwise patient feels very well. 11:15 a.m., 5 Cc. Rheumatism Phylacogen intravenously. 11:35 a.m., intense chill, lasting till 12:05 p.m.; pain in all joints during chill. 12:40 p.m., a second chill came on, lasting about five minutes. 2:15 p. m., 102°-140-36, dyspnea and cyanosis, intense headache and nausea.

June 23: 8 a.m., 97°-88-28. Patient has slight pain in joints and in back. 1:30 p.m., 10 Cc. Rheumatism Phylacogen subcutaneously; slight aggravation of symptoms, without chill or other perceptible reaction.

June 24: 8 a.m., 98°-88-24. Much improved. Was able to move himself from wheel-cot to bed, unassisted. 1:30 p.m., 10 Cc. Rheumatism Phylacogen subcutaneously; no reaction.

June 27: 8 a.m., 97°-94-24. Continues to improve. 2:10 p.m., 10 Cc. Rheumatism Phylacogen subcutaneously; no reaction.

June 28: 8 a.m., 98.1°-80-22. Does not feel quite so well. 1:30 p.m., 10 Cc. Rheumatism Phylacogen subcutaneously. 5:30 p.m., had a decided chill, lasting one hour.

June 29: 8 a.m., 98°-80-25. Feels much better, but has some pain and tenderness about the left external malleolus. 12, noon, 20 Cc. Rheumatism Phylacogen subcutaneously; no distinct chill; very sick; dyspnea. 8 p.m., 101.2°-100-24.

June 30: 8 a.m., 97.4°-94-24. Continues to feel quite sick; tongue sore and

throat hot and dry; breath foul and tongue coated in midline with brownish fur; dyspnea.

July 3: a.m., temperature, pulse and respiration normal. Much improved. Has some tenderness and redness in left external malleolus. 11 a.m., 10 Cc. Rheumatism Phylacogen subcutaneously; no reaction.

July 4: 8 a.m., temperature normal. Still has some tenderness in left ankle. 11 a.m., 10 Cc. Rheumatism Phylacogen subcutaneously; no reaction.

July 6: 8 a.m., temperature normal. Slight tenderness persists in left ankle. 11 a.m., 10 Cc. Rheumatism Phylacogen subcutaneously. 2 p.m., moderate chill lasting 30 minutes. 8 p.m., 102°-122-28.

July 8: 8 a.m., 98°-84-26. Continues to improve. Pain and tenderness gone. 7 p.m., 10 Cc. Rheumatism Phylacogen subcutaneously; no reaction.

July 10: a. m., temperature normal. Patient sitting up in bed, feeling quite well. Phylacogen discontinued.

This was the most remarkable case treated in this hospital because of the persistent severity of the reactions following the injections and because of the prompt improvement and recovery from such extensive articular involvement. While convalescing the patient contracted a cold and suffered a slight involvement of the muscles of the neck, which readily cleared up under the salicylates. (C341.)

Case 25.—Mrs. J., aged 31; housewife. Service of Dr. W. T. L. Private practice. The history was negative as to previous attacks. Patient had eclampsia in her first confinement; three subsequent labors were normal. Has passed several small stones from kidneys. The present attack of rheumatism came on with a slight chill and was followed by a rise of temperature to 104°. The joints of the upper extremity were painful and swollen. I prescribed aspirin 1 dr., calomel and soda 6 grs., to be divided into six powders. I gave one powder every three or four hours; this was taken till the next day, when I gave her 5 Cc. Rheumatism Phylacogen. On the third day—temperature 100°, slight swelling at point of previous injection—I gave a second injection of 5 Cc. Rheumatism Phylacogen. No treatment on the fourth day, but a third injection on the fifth. The pain and swelling were relieved and temperature normal when I gave the fourth dose. I gave six doses of 5 Cc. each. The patient has had no return of symptoms and seems perfectly well. I have found out since that she was two months pregnant at the time of the attack, but the treatment did not disturb the fetus, and she is to be confined in two months. The injections were made subcutaneously, with ordinary hypodermic syringes. (M1516.)

Case 26.—The patient, a boy baby four days old, suffering from acute rheumatic fever, was infected from the mother, who had the same condition the last two weeks of pregnancy and was just recovering at time of labor. She was taking Phylacogen. Dr. M. thought that any disease could occur in a child of this age, and by careful elimination diagnosed the case as one of acute rheumatic fever. Symptoms: redness, swelling, fixation of the left arm, wrist and shoulder, elevated temperature. To determine the amount of pain, and which joints were involved, he made examination while the baby was asleep. When he would touch the affected parts the child would express his disapproval and pain by convulsive twitching of the face and would begin to cry. When not handled the child would again fall to sleep. The physician decided the case could be nothing but one of rheumatic fever. Rheumatism Phylacogen was administered subcutaneously in a dose of three minims; little reaction. Second dose, 4½ minims, with a little more vigorous reactions; then six minims, repeated until eight injections had been given. The child began to improve after the third dose, and improvement increased after each succeeding dose. After the fifth dose he began to move the joints, which before this could not be done. After completion of the treatment the child was free from all symptoms. This case will be reported before

the Academy of Medicine. There are only a few such cases on record, and the physician says he would not take a thousand dollars for this case. Both mother and father are pleased as can be over the results. (M1591.)

Case 27.—Mrs. P. B. L., mother of the child whose case has just been described, had acute rheumatic fever two weeks preceding labor. The same joints were involved as in the case of the baby; they were very painful, swollen and tender. She also had an endocarditis. She was given seven 10-Cc. injections of Rheumatism Phylacogen, with complete recovery. The endocarditis also cleared up. (M1592.)

Case 28.—T. L. L., aged 35, traveling salesman, had rheumatism five weeks, every joint in his body being very painful and swollen. Could not move in bed, and would scream if touched. Began the first day with 5 Cc. Rheumatism Phylacogen; reaction mild. Second dose, 10 Cc.; temperature 105°, chills and sweats, nausea and vomiting. Reaction lasted about six hours. Passed over a day and on the fourth day gave eight Cc.; not so much reaction. Fifth day, 8 Cc.; improvement was noted after this injection. Sixth day, 10 Cc. Seventh day, 10 Cc. Eighth day, 9 Cc. After this injection patient was free from all symptoms, and was up and around. The medical attendant is very enthusiastic about Phylacogen. (M1593.)

RHEUMATIC SCIATICA.

Definition. This term is applied to all painful affections in the distribution of the sciatic nerve, some of which may be neuralgic, but the vast majority are inflammatory and perineuritic, as it is the sheath of the nerve that is usually involved. Gout and rheumatism are favoring causes, especially fibrous rheumatism (68).

Sciatica, or neuralgia of the great sciatic nerve, is a most painful affection, and often exceedingly intractable. It may arise from the following causes: (*a*) inflammation of the neurilemma (acute or chronic), the result of cold, injury, gout, rheumatism, syphilis, or any of a variety of toxic agents; (*b*) pressure upon the extrapelvic portion of the nerve, as by aneurisms, tumors, or old-standing dislocations of the head of the femur on the dorsum ilii; (*c*) similar pressure upon the nerve in the pelvis, or as it emerges through the sacro-sciatic notch, as from sarcoma or osteoma of the pelvic bones, rectal or uterine cancer, a pregnant uterus, or uterine fibroids; (*d*) pressure upon the nerve-roots in the spinal canal, as from caries or sarcoma; (*e*) chronic diseases of the spinal cord, such as tabes.

The treatment necessarily varies with the cause (67).

A number of cases of rheumatic sciatica have been successfully treated with Rheumatism Phylacogen (see page 28).

SPECIMEN CASES ABSTRACTED FROM OUR RECORDS, ILLUSTRATING THE USE OF RHEUMATISM PHYLACOGEN IN RHEUMATIC SCIATICA.

Case 1.—J. W. B., male, weight 250 pounds, has had recurrent articular rheumatism and sciatica for the past twenty years; during recent years unable to walk without two canes. Later severe attacks entirely disabled him. Unable to turn in bed. Has taken every imaginable treatment, been to springs, etc. Was entirely cured with twenty-four 2½-Cc. injections of Rheumatism Phylacogen; no reactions and no inconvenience. Dr. L. advocates small doses, thereby avoiding reactions. (M4.)

Case 2.—Farmer; 45; colored. History negative. Present symptoms: pain from hip to extremity of right leg. Confined to bed for one week, with a temperature of 101°. Diagnosis: sciatica. Treatment: salicylates, etc., without improvement. Sept. 20th, injected subcutaneously 5 Cc. Rheumatism Phylacogen, followed by severe constitutional reaction, but no local reaction. Three days afterward patient came to town. No other treatment was used. Conclusion: complete disappearance of all symptoms, with no return after fifty-two days. (M6.)

Case 3.—Delivery wagon driver, aged 35. A most pronounced case of sciatica; patient was confined to bed and could not move without "howling" with pain; positively could not turn himself in bed. Was given six daily 10-Cc. doses, with the usual reactions, and three weeks after he had been dismissed he ran up the street in Owensboro and jumped flat-footed into his wagon. (M8.)

Case 4.—Mr. M. C. C., who suffered from sciatica for twelve years, was treated with baths and antirheumatic and narcotic drugs, for three weeks, to relieve the pain, with very little result. Patient could not sleep, and the pain was at times very severe.

Oct. 13th, 5 Cc. Rheumatism Phylacogen given, followed by a slight rise of temperature; no chill or sweating.

Oct. 16th, 10 Cc. given; temperature 100°; no chill or sweating. Spent a very restless night.

Oct. 17th, 10 Cc., followed by a temperature of 101°; chill and sweating, followed by ten hours' sleep, best he had had in a year. Pain was felt only on motion.

Oct. 16th, 10 Cc., followed by chill, a temperature of 101°, and sweating. Slept all night, and in the morning said he had no pain even upon motion.

Oct. 19th, 10 Cc., followed by a temperature of 99°; no chill or sweating.

The medical attendant had been using bacterial vaccines for a long time, and this was his first experience with Phylacogen. He intends to give his patient one more injection, although he says he thinks he is cured. (M11.)

Case 5.—W. S. M., building contractor, aged 54, has had rheumatism at intervals during the past seven years. His history otherwise is good; no gonorrhea. I was called on July 14th, at which time the patient had been suffering for about a week with sciatica on the right side; the lumbar muscles were involved, also the shoulder joints. The customary treatment was given until Aug. 3d, with no marked beneficial results, and on this date I began using Rheumatism Phylacogen, giving 10 Cc. for the first dose; a marked reaction followed, with a temperature of 101° F., chills, nausea, and dizziness. In all 60 Cc. was given from Aug. 3d to 11th, inclusive. The reaction was less after each succeeding dose. The rheumatism began to improve after the third injection; the patient was able to get about the house on Aug. 9th, and visited my office on Aug. 17th. He has been well since and is much pleased with the treatment. (M12.)

Case 6.—Furniture dealer, aged 45. No previous history of infection. Has been an outdoor worker. Confined to the house since Nov. 1, 1911, with pain limited to left lower limb. Symptoms very much like those of sciatica,

although medical attendant did not feel sure of the diagnosis. Pain in hip and calf of leg, preventing sleep. Couldn't lie on that side. Muscles in calf of leg flabby, circulation in leg poor; complained of numbness. Patient came to my office and insisted on having Phylacogen, having heard of the first case I had treated. I administered 2½ Cc. Rheumatism Phylacogen on Sept. 1; slight reaction; some nausea and elevation of temperature. Patient felt considerably better next day; slept that night, first time in weeks. A dose of 5 Cc. was given that day; slight reaction. The Phylacogen was repeated in doses of 2½ Cc. for ten days, and the patient was relieved of all symptoms; on account of inaction of limb he cannot use it as well as the other, but is gradually coming to it. Can run. Says he regrets he cannot pay the doctor $250 instead of $50. (M14.)

Case 7.—Mrs. G. W. H., aged 57, housewife. Attending physician, Dr. H. Private case. Diagnosis, rheumatic involvement of nerves, joints and muscles. Patient has been troubled for the past four years with sciatic rheumatism, pains in hips, back and legs. At times has been unable to walk, and at no time during the four years has she experienced a day free from pain. This woman has been under my care for the last eighteen months and I have used electricity (high frequency), therapeutic lamp, aspirin, salicylates, and rhus tox.; all of these agents relieved the condition in a measure, but stiffness and soreness were never entirely relieved. Patient complains of pain in hips, back and shoulders; hips stiff; cannot turn over in bed at night without experiencing severe pain in back and hips; pain and tenderness about the chest.

Oct. 4th, 5 Cc. Rheumatism Phylacogen was administered subcutaneously; no reaction. Oct. 5th, 5 Cc.; no reaction. Oct. 6th, 5½ Cc.; no reaction. Oct. 7th, 9½ Cc.; no reaction. Oct. 9th, 9½ Cc.; no reaction. Oct. 10th, 9 Cc.; no reaction. Oct. 13th, 10 Cc.; chill lasting 20 minutes, backache, headache, sweating.

Treatment was now discontinued because the supply of Phylacogen was exhausted. Patient showed slight improvement, but not very marked.

Oct. 24th, 1⅝ Cc. Rheumatism Phylacogen was injected intravenously; moderate chill. Oct. 25th, 2 Cc.; Oct. 26th, 2½ Cc.; Oct. 27th, 3 Cc.; Oct. 28th, 2 Cc.; Oct. 29th, 3 Cc.; Oct. 30th, 3⅜ Cc.—all given intravenously, and all followed by moderate chill. Nov. 1st, 4⅜ Cc. subcutaneously; severe chill. Nov. 2d, 3 Cc. subcutaneously; moderate chill. Nov. 4th, 4 Cc. subcutaneoulsy; no chill. Nov. 6th, 4 Cc. subcutaneously; no chill. Nov. 9th, 2 Cc. subcutaneously; severe chill for 30 minutes. Nov. 10th, 4 Cc. subcutaneously; severe chill for 15 minutes.

By this time the pain had left and the patient was apparently in perfect health.

On Nov. 24th, 4 Cc. Phylacogen was administered subcutaneously, and as the pain in the hips and back had returned I thought it advisable to give another course of treatment. Nov. 25th, 7 Cc. of Phylacogen was given subcutaneously, and on the 28th 10 Cc. in the same manner, without reaction in either instance; but on the day following the last injection the patient complained of nausea and of pain in the back and hips, a condition which wore off in a few hours.

On Dec. 1st, 15 Cc. of the Phylacogen was given subcutaneously, and on Dec. 5th 10 Cc. in the same manner.

As the rheumatic condition was not entirely relieved at this time, I added Mixed Infection Phylacogen to the Rheumatism Phylacogen, giving subcutaneously on Dec. 6th, 10 Cc. M. I. P. and 6 Cc. R. P.; on the 8th, 5 Cc. M. I. P. and 7 Cc. R. P.; on the 11th, 6 Cc. M. I. P. and 8 Cc. R. P.; on the 13th, 6 Cc. M. I. P. and 10 Cc. R. P. The last dose was followed, four hours after the injection, by a chill which lasted several hours. On Dec. 15th and again on the 16th, 6 Cc. of Mixed Infection Phylacogen and 10 Cc. Rheumatism

Phylacogen were administered subcutaneously, no reaction following.

Patient's condition was by this time very much improved. A final dose of 8 Cc. M. I. P. and 10 Cc. R. P. was administered on the 18th; no reaction, no pain.

Conclusions.—From Dec. 15th to Jan. 12th, the day when the patient reported last, she has been entirely free from rheumatic pains of any description. The pyorrhea, which she had at the beginning of the treatment, while not cured, is very much improved at this time. (C136-C3 & C1.)

Case 8.—J. E. J., aged 54, grocer. Attending physicians, Dr. G. A. H. and Dr. J. P. S. Diagnosis, sciatic rheumatism. Patient had an attack of sciatic rheumatism twenty years ago, which lasted seven months. The present attack began in October, 1911, with severe pain between knee and hip joints on the right side. Unable to walk without cane. Potassium iodide treatment gave some relief, but the pain remained constant.

Jan. 15th, 1912: 5 Cc. Rheumatism Phylacogen was given subcutaneously; reaction pronounced; nausea; vomiting for twenty-four hours; rise in temperature. Following this one injection the pain disappeared and the patient was able to walk without a cane. Improvement marked.

Jan. 27th, 1912: Patient well. No further injections needed. Walks naturally, sleeps well, and is able to attend to his work for the first time since October, 1911. (C5.)

Case 9.—D. B., white, male, aged 41. Attending physician, Dr. S. Diagnosis, rheumatic sciatica and lumbago. Admitted to hospital Aug. 23, 1912; t. p. r. 98°-96-24. Pain in back, running down legs; pain in calf of right leg. For five years patient has been troubled with rheumatism, manifesting itself in sciatica, lumbago, and pains in the calves, treatment being of no avail. Personal examination: Neurotic; denies venereal history; is not in great pain; teeth almost all gone; some pyorrhea; tongue coated; heart negatives; in region of first to fourth lumbar vertebræ, and on either side beyond the erector spinæ pain is intense, on the left following the great sciatic down to lower portion of thigh; rheumatic pain in calf of right leg. Present attack of one week's duration.

Aug. 26: 8 a.m., 97.4°-64-20. Shows very slight improvement under salicylates, eliminative and alterative treatment. 1:30 p.m., Rheumatism Phylacogen subcutaneously; mild febrile reaction. 8 p.m., 100.2°-88-24.

Aug. 27: 8 a.m., 98.4°-88-24. Did not sleep well. Potassium iodide and salicylates continued, with Phylacogen. 11 a.m., 5 Cc. Rheumatism Phylacogen subcutaneously; more marked febrile reaction; p.m., 101.1°-96-24.

Aug. 28: 8 a.m., 98.3°-88-24. Slept fairly well all night; seems much improved. 11 a.m., 5 Cc. Rheumatism Phylacogen subcutaneously; mild febrile reaction.

Sept. 4: Has had no further Phylacogen treatment; improvement has been gradual and the patient is practically well. (C2 & C6.)

Case 10.—M. S., bar-keeper, aged 36, married. Attending physician, Dr. E. C. S. Private practice. Diagnosis, sciatica. Patient has had sciatic rheumatism for the past five or six years; no relief under any kind of treatment. Negative history otherwise. When examined, complained of pain radiating down back of thighs and legs; pain always present, but most severe on motion, on first rising in the morning. Tenderness over the course of the sciatic nerve.

Rheumatism Phylacogen was administered subcutaneously in the dose of 1 Cc.; no reaction. This dose was increased a few drops at a time, and the injection given daily for four days; then on an average of every third day, always slightly increased. In all 20 Cc. was given. There was practically no local and positively no general reaction. Temperature and pulse not noted. Patient up and around all the time. Considers himself cured.

Conclusions.—20 Cc. Rheumatism Phylacogen did more than all other remedies had done for five or six years. (C9.)

Case 11.—F. D., aged 58, male, married, retired. Attending physician, Dr. C. H. Private practice. Patient had suffered from rheumatism for fourteen years (sciatica); unable to bend his legs sufficiently to dress himself, and was awakened at night by pain; could walk only with difficulty. Health good, otherwise. No specific history. When examined he complained of almost constant pain in limbs; legs so stiff that after sitting down he could only rise with difficulty. Diagnosis, chronic sciatic rheumatism.

Treatment: Rheumatism Phylacogen —May 10th, 5 Cc.; May 12th, 5 Cc.; May 13th, 10 Cc.; followed daily with 10 Cc. doses until a total of 100 Cc. had been administered. Severe reactions followed the first three doses, after which the reaction was slight for three or four days, then absent. Marked improvement followed the fifth injection, so that patient could bend his legs, and the nightly pains had ceased. Patient has been free from pain since the fifth injection. Some stiffness still exists in the joints, probably due to non-use for so many years. No relapse.

Conclusion.—That Rheumatism Phylacogen was a curative agent in this case. (C7.)

RHEUMATIC MYALGIA.

Rheumatic myalgia, or rheumatic myositis, or muscular rheumatism, is a painful condition of the voluntary muscles and their aponeurotic coverings, especially aggravated by motion and pressure. It affects particularly the large muscles, such as those of the neck, the shoulders, the arms, the back, the thighs and the calves of the legs, and the intercostal muscles.

Muscular rheumatism is specifically classified according to the special muscles involved. Thus, lumbago is a painful affection of the lumbar muscles and their tendinous attachments. Stiff neck, or torticollis, is an affection of the side and back of the neck, forcing the patient to hold his neck to one side as the situation of least discomfort, and when he desires to turn his head he is forced to turn the whole body. Pleurodynia affects the intercostal muscles and makes breathing and coughing very painful, while a deep breath becomes impossible and sneezing an agony. Cephalodynia, or rheumatism of the muscles of the scalp, scapulodynia, and dorsodynia, are all terms of muscular rheumatism which explain themselves (69).

The exact cause of muscular rheumatism is not well understood (page 29). It has been explained by some writers that the liquids of the body contain so much toxic materials, produced by perverted metabolism, and when a part is exposed to cold, precipitation of these toxic materials takes place, in either crystalline or amorphous form, and this causes stiffness and pain (70).

A number of cases of rheumatic myalgia have been successfully treated with Rheumatism Phylacogen (see page 29).

SPECIMEN CASES ABSTRACTED FROM OUR RECORDS, ILLUSTRATING THE USE OF RHEUMATISM PHYLACOGEN IN RHEUMATIC MYALGIA.

Case 1.—Dr. S. reports the use of six bulbs of Rheumatism Phylacogen in his own case of lumbago, and says he has recovered. He suffered with lumbago for five years and hardly enjoyed a night's sleep during that time. Rheumatism Phylacogen was not recommended for lumbago, and he acted on his own initiative. A typical reaction followed the administration of each dose, and the site of injection was very much inflamed, the inflammation subsiding quickly. He did not use a dose each day; would sometimes miss two or three days. He is very enthusiastic in his praise. (M3.)

Case 2.—This patient, a man of 55, suffered from chronic lumbago and sciatica for several years, with recurrences at various periods. When seen had a slightly subnormal temperature; pulse normal. On May 8th I gave him a bacterin containing streptococcus, staphylococcus, and pneumococcus; repeated the dose on May 10th 12th, 16th and 29th, and again on June 3d, with a slightly perceptible improvement. On June 5th I gave him 5 Cc. Rheumatism Phylacogen, with pronounced improvement the following day. This man was anxious to continue his occupation, driving a cigar wagon, and I concluded that it was better to continue the 5 Cc. dosage so that the reaction would not be so great as to prevent him from going about; so on the 6th, 8th and 10th I repeated the 5 Cc. dose. On the 13th I gave him 10 Cc.; on the 17th 5 Cc. At this time he was better than he had been for years. On July 19th he had a slight recurrence, so I gave him another dose on that date; and on the 23d another 5 Cc. Since that time there has been no recurrence of the lumbago. (M1.)

Case 3.—N. L., farmer and liveryman, aged 32. Service of Dr. W. A. A. Private practice. Patient gave a history of very severe myalgia at three- and four-month intervals; two attacks of pneumonia, four years ago; and a very severe attack of typhoid one year previously. Other history negative. On personal examination, complained of severe pain and tenderness from shoulder to elbow of the left arm, and pain and tenderness over the front of chest on both sides, too severe to allow any sleep. The arm was carried stiffly, and the patient had an expression of pain and exhaustion from loss of sleep. Diagnosis, myalgia. For two weeks different forms of salicylates were given, with no apparent result. March 1, 1913, 5 Cc. Rheumatism Phylacogen was injected; severe local reaction, with chill and rise of temperature to 102.5° March 2d, 10 Cc.; reaction about the same. Four more injections of 10 Cc. each were given at 48-hour intervals, with considerable reaction after each injection.

Pain and stiffness began to diminish after the fourth injection, and had completely disappeared two days after the last treatment. (M1631.)

Case 4.—Wm. H., aged 62, was admitted July 16, 1912. Attending physician, Dr. T. Diagnosis, lumbago. Patient has suffered from pain and tenderness of back, and fever, for about six years periodically, during which time he has had several severe attacks. The attacks would last a few days or weeks, and appear during changes of weather. Bowels regular; no urinary symptoms. Physical examination shows the patient well nourished and developed; tongue slightly coated and tremulous; heart negative. From July 17th to July 22d 10 Cc. of Rheumatism Phylacogen was administered subcutaneously every day, with no reactions. Some stiffness in back, but no pain or tenderness; motion quite good, without pain. Patient can now bend from the erect position, touch the floor, and rise

easily, which could not be done at time of entrance. Treatment discontinued. Patient discharged on August 6th, recovered; no treatment of any kind since July 22d. (C1.)

Case 5.—G. T., aged 40, baker. Attending physician, Dr. J. P. S. Diagnosis, muscular rheumatism. The patient gave a history of pain in the muscles of the back and both legs; could not stoop over or lift any weight. Had been troubled this way for eight years and had taken every kind of medicament and treatment that could have been suggested, without benefit. Could not tolerate any medication by mouth. Eight injections of Rheumatism Phylacogen, 5 Cc. each, were given subcutaneously, with complete relief from all the symptoms complained of. Patient was back at work in perfect health. (C3.)

Case 6.—Machinist, aged 33, single. Attending physician, Dr. C. W. P. Private practice. Diagnosis, chronic muscular rheumatism. The patient has had general myalgia for years, complicated by acute attacks of lumbago several times a year. Practically no joint involvement. History negative so far as urethritis, malaria and syphilis are concerned. Pains on motion and some tenderness over muscles always present. Treatment: 10 Cc. Rheumatism Phylacogen every other day until 40 Cc. had been given. Reactions violent. Patient felt well after the third injection, and refused further treatment after the fourth dose. Conclusion: Rid of rheumatism. (C2.)

TONSILLITIS.

Certain predisposing causes of this disease are mentioned in the standard text-books, such as lowered vitality and enfeebled tissue-resistance, and the rheumatic or uric acid diathesis. The influence of this latter factor is particularly shown in children by the fact that it is in those who suffer from frequent attacks of urticaria and growing pains that tonsillitis is most readily and frequently excited. The association of microörganisms with tonsillitis is almost constant; the streptococci and staphylococci are the forms most frequently and enormously in evidence (51).

Despite the many ramifications of rheumatism, it is only recently that we have come to realize the connection between this disease and diseases of the mouth. Goadby (30), of the National Dental Hospital, asserts that rheumatism may be due to mouth diseases having their origin in the teeth, to those which are entirely independent of the teeth.

F. Meyer (19) studied tonsillar rheumatism bacteriologically in 1899. Since that time he has collected notes of thirty-five cases of articular rheumatism associated with lesions of the nose and tonsils, and has also noted the occasional occurrence of appendicitis of apparently tonsillar origin. Senator, in closing the discussion, referred to the association of intranasal, tonsillar, and laryngeal lesions on the one hand with articular rheumatism and appendicitis on the other as furnishing evidence as to the essentially infectious nature of rheumatism.

The frequency of hypertrophy and adenoids in rheumatic children is interesting in this connection. An overgrowth of the tonsils or pharyngeal mucosa has been observed in 58 reported cases, or 43.6 per cent of the rheumatic children, and this was sufficient to warrant operative inter-

ference in 37, or 27.8 per cent. of the rheumatic cases. The usual percentage of schoolchildren requiring operation upon the tonsils and for adenoids is seven or eight (27).

At a recent meeting of the Verein für innere Medizin und Kinderheilkunde in Berlin, Max Senator (20) read a paper on so-called nasal rheumatism in which he reported a personal case, fortified with two others from the literature, which tended to show that a turbinectomy, even when done aseptically, may sometimes give rise at once to very severe yet typical acute polyarticular rheumatism. A full discussion followed the reading of the paper. Gudzent had long investigated his cases of rheumatism from the tonsillar view-point and had isolated a series of cases presenting that association. These patients were all subjected to tonsillectomy with the hope of securing immunity from further attacks of rheumatism, but all to no purpose. Although the tonsils were infected and manifestly in need of removal, severe subsequent attacks of rheumatism were not prevented. A. Fraenkel went further and fared worse, for he removed infected tonsils in a patient who had not yet suffered from acute rheumatism, but was a victim of nephritis. Immediately following the tonsillectomy an acute endopericarditis developed, while the nephritis, which had always become worse with each attack of tonsillitis, suffered a marked exacerbation.

SPECIMEN CASES ABSTRACTED FROM OUR RECORDS, ILLUSTRATING THE USE OF RHEUMATISM PHYLACOGEN IN RHEUMATIC TONSILLITIS.

Case 1.—Miss H. C., aged 19, student. Attending physician, Dr. F. W. H. Family history negative. Previous personal history unimportant in connection with this illness. About Dec. 16, 1912, the patient's brother was in bed with a very serious attack of the peculiar streptococcus tonsillitis then prevalent in the locality, and she herself later developed an acute endocarditis with a mitral lesion. I was consulted with reference to a glandular swelling of the neck, the size of a goose-egg, but this went down without incident. On Jan. 13, the patient had a slight earache, followed the next day by the beginning of the joint symptoms. Phylacogen treatment by subcutaneous injection was instituted on Feb. 10th. The doses, etc., appear in the following table:

	Dose	Resulting temperature, pulse and respiration	Resulting chill
Feb. 10..	½ Cc.	102.5°-110-26	Mild
Feb. 11..	1 Cc.	101° -108-26	Mild
Feb. 12..	1½ Cc.	99° -102-24	Mild
Feb. 13..	2½ Cc.	100.2°-102-26	Marked
Feb. 15..	2 Cc.	98° - 92-24	Mild
Feb. 17..	2 Cc.	98° - 92-23	Mild
Feb. 18..	3 Cc.	98.4°- 80-20	Mild
Feb. 20..	4 Cc.	98.6°- 78-	Slight

Before the Phylacogen was given the condition was extremely critical. While the salicylates at all times had been causing ringing in the ears, to almost complete deafness, slight nausea, and slight disturbance of vision, they did not seem to do any appreciable good.

Soon after beginning the use of the Phylacogen the improvement in the pa-

tient's general condition became marked. As far as I could judge, the Phylacogen saved the patient's life at a time when there seemed to be little or no hope of her recovering.

Dr. G. was called in consultation and it was he who recommended Rheumatism Phylacogen. (C-418 & C-3.)

Case 2.—Miss W., aged 18. Service of Dr. B. D. L. Private practice. Patient has had recurrent attacks of tonsillitis for some time; during one of the acute attacks pain developed in her wrist. There is no venereal history. Examination revealed a fever of 104°, enlarged and inflamed tonsils, right wrist inflamed and very tender. Diagnosis, acute tonsillitis and articular rheumatism. The salicylates and elimination were first prescribed; and on Dec. 18th 5 Cc. of Rheumatism Phylacogen was administered subcutaneously, as a result of which the fever went from 103° to 104°. The treatment was continued, always subcutaneously, as follows: Dec. 19th, 5 Cc.; no reaction, fever started to drop. Dec. 20th, 5 Cc.; rain disappeared, and swelling in wrist down to almost normal. Dec. 21st, 5 Cc.; no reaction.

The results were excellent: in a week the patient was out, and she has had no more attacks of tonsillitis up to the present time. (M-1674.)

Case 3.—D., aged 24. Attending physician, Dr. J. P. S. Private practice. Diagnosis, acute tonsillitis. One injection caused complete relief from all symptoms without further medication. (C-32.)

Case 4.—E., aged 25. Attending physician, Dr. J. P. S. Private practice. Diagnosis, acute tonsillitis. Phylacogen, 5 Cc., was subcutaneously administered, with partial relief in twenty-four hours. The glands in neck began to swell at this time, and a second injection of 5 Cc. was made, with a clearing up of all symptoms within twelve hours. (C-31.)

Case 5.—A., aged 24. Attending physician, Dr. J. P. S. Private practice. Diagnosis, acute tonsillitis. One subcutaneous injection of Phylacogen, 5 Cc., gave complete relief from all symptoms within 24 hours. No further treatment needed. (C.28.)

Case 6.—B., aged 22. Attending physician, Dr. J. P. S. Private practice. Diagnosis, acute tonsillitis. One subcutaneous injection of Phylacogen, 5 Cc., gave complete relief from all symptoms within 24 hours. No further treatment needed. (C-29.)

Case 7.—C., aged 23. Attending physician, Dr. J. P. S. Private practice. Diagnosis, acute tonsillitis. One subcutaneous injection Phylacogen, 5 Cc., gave complete relief from all symptoms. No further treatment needed. (C-30.)

Case 8.—Woman of 33. Attending physician, Dr. A. H. Diagnosis, subacute follicular tonsillitis. The patient was seen March 9th, and gave a history of severe tonsillitis two weeks previously, which had failed to subside. Temperature at time of examination, 99.3°; both tonsils very much enlarged and reddened, and posterior fauces in same condition. A dose of 5 Cc. Phylacogen was given, and the patient seen two days later, when examination of throat showed the tonsils in almost normal condition as regards size, and posterior fauces and pharynx normal. The patient experienced no further trouble. One injection only was given subcutaneously. (C-10.)

Case 9.—Mrs. C. F., aged 37. Attending physician, Dr. A. C. H. Diagnosis, acute tonsillitis. Patient entered hospital Dec. 27th, 1911, to be treated for leg ulcer, probably specific, and while getting treatment developed a temperature of 103°. Examination of the throat disclosed follicular tonsillitis. The same day 5 Cc. of Phylacogen was administered subcutaneously. On the morning of the 5th the temperature was 100.1°, and a second injection of 5 Cc. was given. On the morning of the 6th the temperature was 99.4°, throat very much improved, all inflammation had disappeared; and by afternoon of this date the temperature was normal.

Total number of 5 Cc. injections, two.

Total number of Cc.'s used, ten.

All injections made subcutaneously. (C-9.)

RHEUMATIC CHOREA.

Sydenham's Chorea.

This is the common type of chorea, and is the disease ordinarily meant when the term chorea is used. It is a subacute disorder characterized by irregular jerking and incoördinate movements. It constitutes about one-fifth of all cases of nervous diseases of children (63).

Gossage (27), of Westminster Hospital, says the nervous phenomena of rheumatism are second only in importance to those connected with the heart, but that they are almost entirely confined to children. It is a common event to find that a child during an attack of rheumatism becomes emotional, alternating between unreasonable laughter and tears; the more marked cases show also distinct mental impairment. This mental and emotional change is exactly like what is invariable in chorea. Naturally with these children, just as with those who have chorea, there is a history of some neurosis in other members of the family. It has also been said that nervous children often have rheumatic parents and themselves show a special liability to rheumatism. The association of chorea and rheumatism is well known, but it is not yet decided whether chorea is to be regarded as always a rheumatic manifestation. If cases of chorea be followed out with care, about 60 or 70 per cent. will be found either to have, to have had, or later to develop symptoms of rheumatism. On the other hand, many cases of chorea start very definitely from overwork or fright, and it is difficult to imagine this as connected with a microbic infection such as rheumatism is now regarded to be. Nevertheless, every case of chorea should be regarded as a potential case of rheumatism, and preventive treatment should be carried out to ward off a rheumatic attack just as though the child had had an attack of undoubted rheumatism. Other nervous phenomena, such as talking during sleep, somnambulism, and night-terrors, are said to be commoner in rheumatic children, and these children are also liable to headache, epigastric pain, and lienteric diarrhea.

Of the nervous manifestations which accompany rheumatism in children, Poynton (26) says that chorea is seldom fatal. Death is usually caused by carditis. In mild cases he finds salicylate of soda and bromides of value, but these are not always effective.

SPECIMEN CASES ABSTRACTED FROM OUR RECORDS, ILLUSTRATING THE USE OF RHEUMATISM PHYLACOGEN IN CHOREA.

Case 1.—G. M., a girl aged 10½ years, was seen on May 29, 1912. Service of Dr. E. B. B. She began two weeks ago to twitch and fidget. The tonsils were slightly enlarged and the heart action irregular in force and rhythm, with a slight systolic murmur at the apex, which was not transmitted outward and was not constant. She was given Fowler's solution, with benefit for a while, when her nervousness became worse again, about July 4th, so the use

of Rheumatism Phylacogen was begun on July 9th, starting with 5 minims, increasing the dose 5 minims daily, omitting Sunday, until 50 minims were given at each dose. Her chorea gradually subsided and disappeared entirely. She was given in all 30 minims of Rheumatism Phylacogen, the last dose on July 29, 1912. There was no evidence of rheumatism in this case, and no previous history of it. This was a mild case of chorea with some emotional instability. (C-12.)

Case 2.—J. L., a boy 7 years old, was seen first on May 5, 1912. Service of Dr. E. B. B. Father and mother are living and well. The patient is the only child, except a half-brother, who is living and well. The mother has had one miscarriage. There had been much rheumatism in the mother's family and she has it slightly at times. No nervous troubles in the family. The patient never had any disease before. His tonsils were removed three years ago. Three months before the present trouble developed, December, 1912, he had rheumatism in the ankle and knee; was very fidgety, had twitching and jerking all over the body, but never had any mental symptoms. Later he had rheumatism in ankles, wrists and fingers, and about Christmas his ankles were swollen. Examination of his heart showed a mitral systolic murmur, transmitted throughout the axilla, and a softer murmur over the body of the heart and at the base. The urine showed a specific gravity of 1010 to 1022, and a sediment of amorphous urates, but was otherwise normal. His leucocyte count was 11,000 and the red blood cells 4,310,000. His temperature was 100° on admission, but was about normal after that. He was treated then with sodium salicylate and sodium bicarbonate, Fowler's solution, ergot, sodium bromide, laxatives, aspirin, hot and cold fomentations to the spine, tr. nux vomica, warm tub baths, diet excluding meat, eggs and tomatoes; but in spite of these he continued to have excessive arrhythmic incoördinate, involuntary movements, and had to be mechanically restrained to prevent his falling out of bed.

Treatment was begun on May 5, 1912, but it had very little effect, and on June 22d Rheumatism Phylacogen was begun, 10 minims being injected subcutaneously. The dose was increased daily by 5 minims. On June 25th the little patient was not fidgety at all, and there was practically no fidgetiness after this. When a dose of 50 minims was reached he had a rise in temperature to 104.6° and was slightly delirious, so the dose was reduced to 40 minims every second day. This did not produce a rise of temperature above 99.2° to 100°. The patient complained of rheumatic pains throughout his illness until after the third injection of Phylacogen, when there were no pains. The dose of Phylacogen was increased to 45 minims on July 6th, and did not produce any febrile reaction, so it was continued at that rate. On July 11th the patient's hands jerked slightly. The highest dose of Phylacogen given was 50 minims, and the last dose was given on July 20th; the total amount administered was 60 cubic centimeters. The patient was entirely well of his chorea and rheumatism after this, his heart was greatly improved, and he left for home on July 25th. He was seen again on Feb. 10, 1913. He had had no return of chorea or rheumatism, but still had a mitral regurgitation as a result of his rheumatic endocarditis. The Phylacogen treatment has proved successful far beyond expectations, and the boy is able to go to school and play with moderate exertion without shortness of breath or edema of the ankles. He is not allowed to run. (C-10.)

Case 3.—R. T., a girl, aged 8½ years, was first seen on July 2, 1912. Service of Dr. E. B. B. Her maternal grandmother's father had had rheumatism, and she herself had had pains in her legs, ankles and knees on and off for four or five weeks, but never had any other disease. The present illness began with laughing and crying easily, and the development of a very sensitive

disposition which continued for four or five months. She became fidgety a week ago; the twitching began in the right leg; next the left leg became affected, then the left arm and the right arm. It was worse in the left arm than anywhere else. The face, neck and head were also affected. She had been losing weight for a month. There were no mental symptoms except a marked emotional instability. Her tongue was very tremulous and she had difficulty in swallowing. She had much trouble in talking, usually could not be understood at all, and rarely attempted to say more than one word at a time. There was no sore throat. There was a slight systolic murmur at the apex and over the body of the heart when the child was lying down, but this was not transmitted into the axilla and was not heard when she was sitting up. The muscular movements were extreme and she had to be assisted in walking. There was no strength in the left arm; it was practically useless. She was given Fowler's solution and on July 3, 1912, treatment with Rheumatism Phylacogen was started. She was given 5 minims the first day, and the dose was increased 5 minims every day, skipping Sundays, till she took 60 minims at a dose. On July 22d the improvement was very noticeable, both in talking and muscular control. On August 2d the speech was normal and the chorea scarcely noticeable, and by August 9th the latter was entirely gone. The Phylacogen was stopped on August 16th, after she had taken 60 cubic centimeters. The strength returned to her arm and the rheumatism and chorea entirely disappeared. (C-11.)

Case 4.—L. M., a girl of 10, was seen first on Nov. 9, 1911. Service of Dr. E. B. B. Patient has always been nervous. Her mother noticed two weeks ago that her mind seemed a little blank, that her fingers and feet twitched irregularly, and that she dropped things often. She was very fidgety, but not emotional. She had had no rheumatism or "growing pains." Her tonsils had been removed when she was four years of age. She was given Fowler's solution, and her fidgetiness was gone by Dec. 5, 1911. She then had an attack of chicken-pox, and on December 28th had rheumatism in her right knee and left ankle, which lasted three to four days, and she became cross and irritable. This disappeared under diet, colon lavage, and aspirin. There was some return of fidgetiness, which stopped however by Jan. 23, 1912, but returned off and on in February and March. On March 23d she had an attack of cystitis. She did well after this, but returned to me on Nov. 5th and stated that two weeks previously the fingers of both hands had begun to move irregularly, and that she had had rheumatism in the knees and ankles in September and October. Rheumatism Phylacogen was administered first on Nov. 6th, 5 minims, and the dose increased 5 minims each day up to 25 minims. On Dec. 14th she had rheumatism in the left knee and shoulders, and on Jan. 2d in both hips and knees. The Phylacogen was stopped on January 16th; there had not been any nervousness, pains or aches for a week, and there have been none since. She was given 60 cubic centimeters of Phylacogen. She took aspirin and Fowler's solution as well as Phylacogen while under treatment. (C-13.)

Case 5.—C. B., aged 24, a married woman. Attending physician, Dr. G. Diagnosis, acute articular rheumatism and hemi-chorea. The patient entered the hospital Sept. 6th, complaining of pain in the right knee, shoulder and wrist. The right knee was painful to the touch, with very limited motion. The right wrist was painful upon motion, but not to the touch. The patient received salicylates from Sept. 7th to 26th, with no appreciable influence over the disease, and it was then decided to try vaccine treatment. The patient's general condition was rather poor, she being run down and badly nourished and carrying a six-months fetus. Rheumatism Phylacogen was administered as follows, always subcutaneously:

	Dose	Reaction	Temperature and pulse	Temperature and pulse
Sept. 27.....	5 Cc.	Slight chill	11 A.M...101° - 90	6 P.M...102° -115
Sept. 28.....	5 Cc.	Not very marked chill	" ... 97.2°-100	" ...103° -100
Sept. 29.....	5 Cc.	Chill	" ... 98° - 96	" ...101° -100
Sept. 30.....	5 Cc.	Chill	3 P.M... 97.4°- 90	" ...100.2°-100
Oct. 1.....	5 Cc.	No chill	" ... 98.2°- 95	" ... 98.2°- 95
Oct. 2.....10 Cc.		No chill	" ... 98° - 95	" ...102° -110
Oct. 3.....10 Cc.		No chill	" ...98.2°- 90	" ...100° -105
Oct. 4.....10 Cc.		No chill	" ...98.2°- 90	" ...100° -110

Up to this time the effect of the Phylacogen had been only fairly noticeable so far as any betterment of the condition of the joints was concerned. Pain upon pressure was not so severe, and swelling of the right knee had gone down some but not to any marked extent. On Oct. 5th, 10 Cc. of Phylacogen was administered; no chill. Temp., 3 P.M., 97.3°, pulse 80; 6 P.M., temp. 98°, pulse 90. On the following day the right knee was very much reduced in size, almost reaching normal measurements, and the pain in the joints had disappeared; joint motion practically normal. On the 7th all joints were normal; no limited motion, and the chorea was markedly better, an effect which was attributed to the vaccine having eliminated the rheumatic infection. The infection in this case probably occurred through some old teeth or through the tonsils, which are much enlarged.

Leucocyte Count. Sept. 27, before first dose of Phylacogen, 13,000; after Phylacogen, 12.000. Sept. 28, A.M., 12,000; 8 P.M., 12,600. Sept. 29, A.M., 12,000. Oct. 1, A.M., 10,000. Oct. 4, A.M., 10,000. Oct. 6, A.M., 13.000.

Recapitulation.—The constitutional effect of the Phylacogen was noticeable only by a slight chill following the first four injections. Subsequent injections produced practically no constitutional reaction. The local reactions were very conspicuous after every injection, consisting of very marked induration and pain which lasted approximately two days. The highly neurotic condition of the patient must be taken into account when weighing the question of local reactions. It is interesting in this case to note that Phylacogen had apparently no influence upon the fetus, and it certainly had none on the uterine muscles. All the injections were given subcutaneously. Total number of 5-Cc. injections, five; total number of 10-Cc. injections, three; total number of cubic centimeters injected, fifty-five. (C-197-C-5 & C-1.)

CASE 6.—C. B., aged 14, schoolboy. Service of Dr. H. Diagnosis, chorea. Date of admission, July 19, 1911. Five weeks before admission the patient had choreic movements. At the time of admission there were marked right hemichorea, aphasia, systolic murmur at apex. Under treatment for twenty-eight days with Fowler's solution, alternated with bromides, the symptoms gradually improved and speech returned. Then for several days there was no further improvement. On Aug. 16th 2½ Cc. Rheumatism Phylacogen was administered subcutaneously, followed by headache. Aug. 17th, 2½ Cc.: headache, slight local pain. Choreic movements less. Patient more quiet. Aug. 18th, 2½ Cc.: headache. Lies perfectly still; no twitchings. Aug. 19th, 5 Cc.: headache and numbness of legs. Twitching has almost entirely disappeared. Murmur at apex much softer. Treatment discontinued.

All these injections had no effect on temperature, pulse or respiration, which remained unchanged throughout. (C-7.)

CASE 7.—July 2, 1912. Last month I had an opportunity of using Phylacogen in a case of chorea of two months' standing, which was very greatly improved after five injections. The patient returned to the country, and I recommended the physician there to use more if the symptoms returned. The

choreic movements have practically disappeared; heart action is very much improved. I trust the ultimate results will be as satisfactory as the immediate effects, and, if so, there is a great opportunity for the Phylacogen. (C-9.)

Case 8.—Baby F., aged 4 years. Attending physician, Dr. S. Diagnosis, chorea minor. Early stage of St. Vitus' dance; disease well marked. Gave one 2-Cc., one 4-Cc., and one 6-Cc. dose of Rheumatism Phylacogen, a dose every other day. Within less than two weeks' time there were no signs of the disease. (C-1.)

Case 9.—Miss I., aged 8 years. Attending physician, Dr. S. Diagnosis, chorea minor. The child had been in the hospital about two months, under treatment, and had improved but was still twitching. Gave three doses of Rheumatism Phylacogen, one dose every other day, first 2 Cc., second 4 Cc., third 6 Cc. In a week's time all the twitchings were entirely gone. At the present time, six weeks later, the patient has no signs of the disease. (C-2.)

Case 10.—Miss L., aged 13 years. Attending physician, Dr. S. Diagnosis, chorea minor. Marked symptoms of chorea, muscular twitchings all over body; could not keep still at all; general condition poor. Gave four doses of Rheumatism Phylacogen, one of 2 Cc., one 4 Cc., one 6 Cc., and one 8 Cc., on alternate days. After the third dose marked improvement appeared. After the last dose improvement continued until, at the end of two weeks, only very slight twitching in the fingers could be felt. In two and a half weeks there were no symptoms of the disease. Patient has been kept in the hospital since (six weeks) under observation, and has gained in flesh, her general condition is much improved, and she has shown no symptoms of chorea. (C-3.)

Case 11.—Master John B., aged 8 years. Attending physician, Dr. S. Diagnosis, chorea. Patient entered hospital Jan. 2, 1912, with a history of having had the complaint one month. Under treatment he was making gradual recovery; still had minor chorea. March 31st Rheumatism Phylacogen. 2 Cc., was administered subcutaneously; April 3d, 4 Cc.; April 6th, 4 Cc.; April 9th, 2 Cc. Patient was then discharged cured. After the first dose there was almost no chorea. After the second dose patient was sent home from hospital. After the third dose he seemed perfectly well, but was given a fourth dose to make sure. (C-4.)

RHEUMATIC IRITIS.

Iritis, or inflammation of the iris, is due in more than fifty per cent. of the cases to syphilis, and in a large proportion of the remainder to rheumatism.

Rheumatic iritis is accompanied by circumcorneal injection, which is prominent in comparison with the other signs of iritis present. The pain in rheumatic iritis is often peculiarly severe. The probable duraton of an attack of iritis cannot be foretold at the outset. Cases which in other respects are mild, *i.e.*, cases in which the pupil dilates well and rapidly to atropine and the aqueous humor is clear, and in which but little lymph is thrown out, often continue for weeks in an irritable and painful condition, with a marked tendency to relapse if treatment be at all relaxed. An attack of iritis may last from two to eight weeks. Recurrences of the inflammation are common, owing to continuance of the constitutional taint which may have given rise to the iritis in the first instance.

Many cases of rheumatic iritis have yielded to Rheumatism Phylacogen (see page 28).

SPECIMEN CASES ABSTRACTED FROM OUR RECORDS, ILLUSTRATING THE USE OF PHYLACOGEN IN RHEUMATIC IRITIS.

Case 1.—Iridocyclitis in a young man. The attending physician had given him everything that could be suggested in this condition, but to no avail. As a last resort, he put him on Rheumatism Phylacogen, with marked improvement from the beginning. (M-1.)

Case 2.—A married woman, aged 30, who had been suffering with iritis for some time. Had consulted specialists throughout the country and spent considerable money. The family history revealed the fact that her child, two years old, had been suffering with articular rheumatism, which led the medical attendant to believe that the iritis was due to a rheumatic infection; accordingly he instituted treatment with Rheumatism Phylacogen, using Adrenalin Ointment locally in the eye. After five injections, the first with 5 Cc., the other four 10 Cc. each, the condition cleared up. (M-1.)

Case 3.—M. L., male, aged 33, white. Rheumatic iritis of a week's duration. The salicylates were tried without effect. Gave 5 Cc. Rheumatism Phylacogen Sept. 10th; severe reaction. Sept. 12th, 10 Cc. Patient was very much improved next day, but refused to take further injections on account of the reaction. Iritis had completely disappeared in five days after the first injection. (M-4.)

Case 4.—Mr. J. E. L. Attending physician, Dr. V. A. D. Diagnosis, iritis following operation for cataract. Patient had lost one eye some five years ago, probably due to iritis setting in after a successful cataract operation by some other surgeon. I removed the cataract in his remaining eye and sent him home at the end of the second week. A few days later he came in with a beginning iritis. Physicians who have performed many cataract operations know how serious this condition is and how poor the chance for recovery. I at once used the Rheumatism Phylacogen, first giving 5 Cc. every day, then 10 Cc., with local application of Adrenalin every third day. Not only did the iritis subside, but the capsule which seemed so thick became transparent. I have since fitted the patient with glasses without doing a needling. He had a severe reaction after each 10-Cc. dose. Now has two-thirds normal vision and a good-sized pupil. (C-5.)

Case 5.—Mrs. B., nurse. Attending physician, Dr. V. A. D. I treated Mrs. B. one year ago for rheumatic iritis, for the first time. She has had two attacks since, each lasting a week before I succeeded in getting control of the trouble, and another week and a half before she was well enough to resume work. She had other rheumatic pains and gave a history of rather severe attacks in her limbs. She had another attack on March 15, 1913, the right eye being affected. I gave only two doses of Rheumatism Phylacogen, when the symptoms disappeared. The following week the left eye developed the same symptoms. I tried the Phylacogen without the use of atropine, as I could watch the patient closely, she being employed by me at the time. She continued at her work, and only two doses of Phylacogen were necessary, as the eye cleared up very readily. Mrs. B. reports that not only does her eye feel all right but the stiffness in her limbs is gone. I have advised that she take one or two more doses to insure a more complete cure. Both eyes cleared much more quickly than by my old treatment, without the pain, without the long use of atropine, without quitting work. She had only one chill, following the third injection. (C-13.)

Case 6.—G. G. Attending physician, Dr. V. A. D. Mr. G. is a chronic rheumatic and has had repeated attacks of iritis. I treated him myself in 1909 for this trouble. He came to me in August, 1912, with the same trouble and small ulcers. I used atropine, dionin and the salicylates. He improved somewhat, but

slowly, and setbacks were frequent. He made a trip to Germany, and on his return said he had a relapse while over there and was treated by a practitioner of Frennstadt. The prescriptions he brought back represented the same plan of treatment he had received while under my care, confirming my diagnosis. I saw Mr. G. again in January, 1913. At this time he had a recurrence in the left eye both of the ulcers and the iritis. I gave Rheumatism Phylacogen in 5-Cc. doses, giving in all 35 Cc., with no severe reaction. The result so far is good. He has had no signs of a relapse; the iris is normal; the ulcer scars are there, but the conjunctiva is clear, with no sign of trouble. (C-12.)

Case 7.—Mr. G. B. Attending physician, Dr. V. A. D. Mr. B. came to me with what I thought was a case of conjunctivitis. I treated it as such until the fourth day, when I suspected that it was going deeper. The symptoms of iritis then began to appear, for which I could find no definite cause. The personal and family history were negative excepting that his mother had been a sufferer from rheumatism for years. Nothing that I could do seemed to check the advances of the iritis. I sent the patient back to his family physician with instructions to give the Rheumatism Phylacogen in 5-Cc. doses. The physician not only did as I directed, but gave it intravenously. The results were almost immediate; the patient was relieved before the third dose, but I advised giving it for at least seven or eight doses. Results perfect. (C-11.)

Case 8.—Mr. A. E., aged 38, clerk. Attending physician, Dr. V. A. D. Diagnosis, rheumatic iritis. Patient gave a history of semi-annual attacks of seeming iritis; no sure diagnosis could be made in the past, and I found it exceedingly hard to make a definite diagnosis. The attacks began as an apparently slight conjunctivitis, which later developed into a very severe attack of iritis that became adhesive, and the entire surroundings gave the appearance of a deep cellulitis. I instructed the patient's physician to give him 5 Cc. Rheumatism Phylacogen, daily, for three doses, and then 10 Cc. every three or four days. The case showed improvement, but threatened relapse when we tried to stop the Phylacogen. Very severe reactions occurred after each dose, and the patient was obliged to go to bed several times, but after fifteen doses he was entirely cured. He was back at work in a week's time, but the eye was not really well until after the fifteenth dose. Atropine was used to keep pupil open.

The patient is entirely cured, and has passed two of his "iritis seasons," as he calls them. (C-6.)

Case 9.—Mrs. M. Attending physician, Dr. V. A. D. Diagnosis, iritis following operation for cataract. Mrs. M. has only one eye, in which she had a cataract. I operated. Three weeks after operation she developed iritis—a serious condition, especially with a dense capsule. This was my second case with a similar history, and I decided to try the Rheumatism Phylacogen. I gave 5 Cc. every other day, for the first week, then 10-Cc. doses. The reaction was very severe from the second 10-Cc. dose—so severe that the patient would not allow me to use any more Phylacogen. The pain had let up, however, and I am glad to say the pupil, while not what I wished it to be, is large enough to allow for refraction. Strangest of all, the capsule has thinned out so that a needling is not necessary, at least at present; this may, of course, have been secretion or cortex, but we all know how we dread to see that tough capsule form, and anything that in any way lessens these difficulties is surely welcome. As I have said, this is only my second case of this kind, but I am going to watch the effect in my cases in future. If this result should prove constant, it would be advisable to give the Phylacogen even before operation in suspected cases that give a gonorrheal history. It has surely stopped the advance of iritis in these two cases, and that is what I wanted. You can be sure I will not hesitate to use it in like cases. (C-7.)

Case 10.—K. K. Attending physician,

Dr. V. A. D. Diagnosis, iritis (cause questionable). Miss K. came in with a very painful iritis; the eye was deeply injected, and the iris irregular. She gave a history of vague pains here and there, but no definite history of rheumatism. I ordered the Rheumatism Phyacogen given in 5-Cc. doses, one every day. On the third day she was given 10 Cc. She had a severe reaction from this, but the eye cleared up rapidly. After two more doses of 10 Cc. each, I ordered the Phylacogen stopped. Ten days later she came back with a relapse, not severe, but surely a recurrence. I ordered the 10-Cc. doses to be given again. After the second dose the eye again cleared up, but I am having her take 10 Cc. a week, for a while. The case is still under observation. Atropine was used to keep the pupil dilated. The interesting feature in this case was the almost instant relief from pain, the loosening of the iris and its full dilatation. I do not believe the disease would have yielded so nicely under our old methods. (C-10.)

Case 11.—Mr. T. Q. Attending physician, Dr. V. A. D. Patient had a mild but long-drawn-out case of iritis; another oculist besides myself could not find any real cause for the trouble. The case responded well under atropine, and the pain, which was at no time very severe, would let up entirely. The only trouble was that after a period of two weeks to a month the iris would show signs of irritation and the slow nagging pain would return. I had the family physician use liberal doses of sodium salicylate, examine the urine, etc., but the symptoms reappeared. We then used the Rheumatism Phylacogen in 10-Cc. doses, subcutaneously. After four doses of 10 Cc. each, the symptoms disappeared. This was in November, 1912. Patient has had no symptoms of a return of the trouble, and has reported to me that he feels much better in every way. His physical condition is notably improved. (C-9.)

Case 12.—Mr. J. K. Attending physician, Dr. V. A. D. Mr. K. came to me with a very painful iritis of the left eye. He gave a history of rheumatic pains in shoulders and limbs, and had been laid up two years previously with an attack of acute rheumatism. He has had vague pains and aches here and there, but no attack severe enough to incapacitate him since his trouble two years ago. I ordered the Rheumatism Phylacogen given in 5-Cc. doses. After the second injection Mr. K. had a good reaction, following which the pain was entirely gone, the iris dilated, and the redness of the conjunctiva very much lessened. I had his physician give him three more doses at three-day intervals. The case was so entirely cleared up at the end of that time that I did not think it necessary to give any more Phylacogen. There has been no evidence of a recurrence, thus far. Last November was the last time I saw the patient. I have advised that he take a longer course of treatment for his general rheumatic condition. He has not come back for such treatment, so probably has had no attacks of his former pains. (C-15.)

Case 13.—C. B., aged 66. Attending physician, Dr. V. A. D. Diagnosis, rheumatic iritis. The conjunctiva and sclerotic coat were badly inflamed; pupil contracted. The pain had been so intense, particularly from midnight until 4 A.M., that the patient had not been able to sleep for the past two weeks.

Treatment: Rheumatism Phylacogen, 5 Cc., subcutaneously. Improvement within 48 hours; pain stopped at once; redness began to lessen. Patient had a severe chill four to six hours after the injection, lasting from one and a half to three-quarters of an hour. A second dose of 5 Cc. was administered 48 hours after the first dose. Redness almost completely disappeared within 48 hours after second dose. No pain. Chill not so severe. Gave six more doses of 5 Cc. each, three days apart. Redness and pain entirely disappeared after third dose, but the five additional doses were given to make sure of a complete cure (C-3.)

Case 14.—Mr. K., aged 55. Attending physician, Dr. V. A. D. Diagnosis, iritis. There was no history of rheuma-

tism except pain in back (lumbago). The whole conjunctiva and sclerotic coat of the eye were angry and red, with intense pain around the eye; this condition had existed for a week. Rheumatism Phylacogen, 5 Cc., subcutaneously; no chill, no reaction. Redness very much lessened, pain disappeared at once. Forty-eight hours later a second dose of 5 Cc. was given. Redness entirely disappeared within 48 hours after second dose. Forty-eight hours later, third dose of 5 Cc. Patient discharged cured. (C-2.)

Case 15.—Mr. K., aged 71. Private case. Attending physician, Dr. V. A. D. Diagnosis, rheumatic iritis. For about ten days the conjunctiva had been greatly inflamed, there was intense pain around the eye, and the patient could not sleep nights. Rheumatism Phylacogen, 3 Cc., subcutaneously; no chill; pain lessened, redness markedly decreased. Forty-eight hours later a second dose, this time 5 Cc., was given; severe chill. Five days later, 2 Cc. Still some redness but no pain. Four days later, 5 Cc., and again after another interval of four days, 5 Cc. Patient not entirely cured; no pain, but still some redness. As the patient was unable to purchase any more Phylacogen, the treatment was discontinued. (C-1.)

Case 16.—Mr. P. W., aged 38, clerk. Attending physician, Dr. V. A. D. Diagnosis, iritis. The patient having had rheumatic disturbances in the joints for years, I naturally leaned toward rheumatic iritis as my diagnosis. But he also gave a history of gonorrhea six years previously—a rather bad combination to treat, especially in the eye. The case had been treated by a general practitioner for some time before the patient came to me. I instructed the family physician to give 5 Cc. Rheumatism Phylacogen, subcutaneously, and two days later to give 5 Cc. Gonorrhea Phylacogen, subcutaneously. The case showed immediate improvement, and after five 5-Cc. doses of Rhematism Phylacogen and four 5-Cc. doses of Gonorrhea Phylacogen, given alternately every two days, the condition entirely cleared up. Atropine was used to keep the pupil open, and was the only part of our old treatment used in this case. Patient had slight chill and fever following each injection. Result, cure; no adhesions; perfect pupil; normal sight. (C-16.)

Case 17.—Mrs. K. W., aged 29, housewife. Attending physician, Dr. V. A. D. Diagnosis, rheumatic iritis. Patient gave a history of repeated attacks. She is from without the city, and the case is of long standing. Five Cc. Rheumatism Phylacogen and 1 Cc. Adrenalin Solution (1-3200) were given, for three doses; I then gave Rheumatism Phylacogen, 10 Cc., for three more doses. Patient had marked reaction after each 10-Cc. dose; severe chill and fever. Result: case cleared up entirely; no adhesions of iris; all old adhesions became loosened. (C-4.)

RHEUMATIC NEURALGIA.

Neuralgias of all kinds make up about ten per cent of the nervous disorders for which the neurologist is consulted. The most frequent form is the trigeminal; next in order come the sciatic, intercostal, cervico-occipital, lumbo-abdominal, brachial, and visceral neuralgias.

Hereditary influence, neurotic constitution, anemia and debility, the gouty and rheumatic diatheses, all predispose somewhat to the disease. The exciting causes may be included under the heads of toxic agents, infections, exposures, over-exertion, emotional shock, injuries, and neuritis of low degree (62).

A number of cases of rheumatic neuralgia have been successfully treated with Rheumatism Phylacogen.

SPECIMEN CASES ABSTRACTED FROM OUR RECORDS, ILLUSTRATING THE USE OF RHEUMATISM PHYLACOGEN IN RHEUMATIC NEURALGIA.

CASE 1.—Ocular and occipital neuralgia following a severe attack of articular rheumatism last winter. This patient has been in such severe pain that he was "almost crazy," as the physician states, and had been given as much as ¼ grain morphine with absolutely no result. Started patient on Rheumatism Phylacogen, and after 40 Cc. had been given the pain had almost completely ceased.

CASE 2.—Woman of 40. Has had neuralgia for years, suffering intense pain. Ten Cc. Rheumatism Phylacogen given, followed by quite a pronounced reaction lasting one day. Five days afterward another injection of the same quantity was given. This constituted the entire treatment, as the patient had no money to get more Phylacogen; the symptoms had subsided and the patient stated she felt well. (M-3.)

CASE 3.—Mrs. P., aged 36, a sufferer from trifacial neuralgia for over four years. Unable to get relief from various, in fact all, known remedies for this disease. Dr. H. gave her 5 Cc. Rheumatism Phylacogen, first dose; second dose, 5 Cc.; third dose, 10 Cc.; fourth dose dropped to 8 Cc. on account of severe reaction; then followed further treatment with Rheumatism Phylacogen until 90 Cc. in all had been given. The patient was greatly improved; the medical attendant considers the result a perfect cure. (M-4.)

CASE 4.—Male, aged 58. Articular rheumatism of seven months' duration. When the physician called, ankles, wrists, knees and one hip were involved; the patient was also suffering from trifacial neuralgia, for which he had been previously operated upon by another surgeon. All the involved joints were badly swollen and extremely painful. Treatment: Rheumatism Phylacogen in 10-Cc. doses, every other day until 60 Cc. had been given. Usual reaction. Cured and returned to work in about sixteen days. Has been working two and a half months; no relapse has occurred. (M-5.)

RHEUMATIC NEURITIS.

Neuritis and neuritic degeneration complicate many diseases, but especially subacute and chronic rheumatism, locomotor ataxia, diabetes, paralysis agitans, and wasting diseases.

A neuritic degeneration almost always affects the nerves in the neighborhood of an old rheumatic joint. The chief result of this is to produce wasting and some paresis of the muscles operating the joint (61).

A number of cases of rheumatic neuritis have been successfully treated with Rheumatism Phylacogen (see page 28).

SPECIMEN CASES ABSTRACTED FROM OUR RECORDS, ILLUSTRATING THE USE OF RHEUMATISM PHYLACOGEN IN RHEUMATIC NEURITIS.

CASE 1.—Married man, aged 45, 'longshoreman; had had recurrent attacks of rheumatism for a number of years; gives no history of typhoid, pneumonia, erysipelas, diphtheria or gonorrhea. All joints badly swollen and extremely painful. Extreme neuritis, involving both hands and arms, this condition having been persistent for several years. Patient not able to life cup to lips or pipe to mouth; had to be fed most of the time. History of syphilis, and of patient having been a heavy drinker at different periods. Previous treatment

by different physicians without result. Present symptoms negative, excepting slight muscular atrophy and slight neuritis. Diagnosis, chronic rheumatism with neuritis.

Rheumatism Phylacogen was administered subcutaneously as follows: Ten Cc. on the first day; repeated on the fourth, sixth, ninth, twelfth, sixteenth and twenty-sixth days. Patient was then up and around, and entirely free from pain. Is now able to walk as well as any man and to feed and clothe himself, something he has not done before for years. Only slight neuritis present. After the second injection of Rheumatism Phylacogen the patient had no more pain. After the fourth injection he was able to make a slight impression with his hands when asked to shake hands. The patient's neuritis was of a severe form and the physician gives all the credit of recovery to the Phylacogen. (M-2.)

Case 2.—Mr. G., aged 50, manager. Service of Dr. F. S., private practice. Diagnosis, rheumatic neuritis.

Patient was treated from September, 1912, to March, 1913, with sanitarium baths, massage, electrical treatments, aspirin, and arsenic; no results. When seen by Dr. S., complained of pains in back, shoulder and arms; at times could not sit up; slight tenderness over affected parts; poor appetite; tongue coated. Rheumatism Phylacogen was administered as follows: March 15, 1913, 5 Cc.; local reaction, redness, no systemic reaction; pain ceased 8 hours after injection. March 16, 5 Cc.; no reaction. March 17, 10 Cc.; no reaction. March 18, 10 Cc.; no reaction. March 19, 10 Cc.; no reaction. March 20, 10 Cc.; no reaction. March 21, 10 Cc.; no reaction. The first injection was made in the arm, and the others in the abdomen. Pain ceased after first injection. Patient has been in perfect health since treatment. (M-1506.)

Case 3.—Mrs. A. J., aged 43. Attending physician, Dr. J. C. Diagnosis, chronic rheumatism and neuritis. Patient has had rheumatism for years. Elbow and knee have been swollen and very painful, with little motion possible, for more than a year; patient unable to get relief.

Oct. 26, 1912: Rheumatism Phylacogen was administered subcutaneously as follows: Oct. 26, 1912, 2 Cc.; Oct. 27, 3 Cc.; Oct. 28, no pain, joints flexible; Oct. 29, 6 Cc. Phylacogen; Nov. 1, 5 Cc.; Nov. 3, 5 Cc.; Nov. 7, 5 Cc.; Nov. 8, 5 Cc.; Nov. 9, 5 Cc.; Nov. 12. 5 Cc. Patient refused further treatment, and was discharged much improved but not entirely cured. (C-3.)

Case 4.—Dr. K., aged 52, married. Attending physician, Dr. S. Diagnosis, multiple neuritis with inflammatory rheumatism. First attack of rheumatism occurred 29 years ago; there was no recurrence until last January. On examination, pain, heat, redness, and swelling of joints were disclosed; the hands were so stiff they could not be opened or closed. Rheumatism Phylacogen was given subcutaneously. The first three doses were 5 Cc. each, followed with 10-Cc. daily doses for fifteen days. No local or systemic reactions followed injections. No adjunct treatment but bath and massage, except a small amount of aspirin occasionally to relieve the pain. After eight injections all symptoms of rheumatism disappeared entirely. Injections were continued daily, and rheumatic symptoms reappeared in smaller joints in 72 hours, and continued for an indefinite period after the tenth injection. The hands are yet stiff in the morning, and weak, and neuritis of several branches of spinal nerves still continues. Conclusions as to the value of Phylacogen in this case are indefinite; attending physician will not go on record for or against the remedy, but will try it on first suitable patient who will submit to treatment.

Note.—Dr. K. was hopelessly "down and out" before Phylacogen was tried. He was so helpless that his wife had to feed him, and he was thoroughly discouraged. He is again practicing and operating his own automobile. (C-2.)

PURPURA RHEUMATICA.

(Peliosis Rheumatica, Arthritic Purpura, Schönlein's Disease) (65).

This variety of purpura, which has a striking analogy to erythema multiforme, is probably an exaggerated form of some of the conditions recognized under that title. It is preceded by the usual febrile or other premonitory symptoms and associated with arthritic pains, especially in the knees and ankles, which may become swollen or affected with hydrarthrosis. In a few days petechial to ecchymotic, light-red to dark-purplish maculations appear upon the extremities, the trunk, or the entire surface of the body, fadeless under pressure, and usually with coincident relief of the arthritic pain. The subjective sensations are ordinarily trivial. In a fortnight the erupton may subside, its color undergoing the usual variations from greenish to orange and light yellow; but relapses are common in the course of weeks, with recrudescence of the fever, return of rheumatoid symptoms, and progressive asthenia. The purpuric spots sometimes make their appearance regularly in the afternoon or evening, sometimes daily, and often with several days' interval, accompanied by pain, stiffness, and swelling of joints. The arthritic symptoms are extremely variable and may be slight or severe. While most common in the knees and ankles, they may appear in any joint of the body. Associated with the purpura and the arthritic symptoms there are often mild or severe gastrointestinal disturbances.

There are, thus, in the majority of cases three groups of symptoms, the cutaneous, the arthritic, and the gastrointestinal. It is rare, however, for these symptoms to be equally severe in any one case, one or two of the groups being usually but slightly or not at all apparent. Frequently one group succeeds another. Thus, the arthritic pains may subside before the appearance of the purpura, or the reverse may be true. Throat lesions, acute circumscribed edema (64), and urticaria are often seen with one or more of the groups of symptoms above described.

The intimate relation of purpura rheumatica to erythema multiforme has been discussed in medical literature. Cases are described in which there was a coincidence of purpura rheumatica with renal hemorrhage, albuminuria, and gangrene of the soft palate. Cases are also on record in which there were cardiac involvement and grave disorders of other viscera.

The disease occurs in both sexes, though more often in young women, and is to a certain extent influenced by change of climate and season. Its diagnosis, in consequence of its marked characteristics, coincidence of petechiæ and ecchymoses with rheumatoid pains, is effected readily. Duhring calls attention to the danger of confounding the disease with the macular syphiloderm, the lesions of which, however, when relatively recent, fade under pressure.

The prognosis is in general favorable, though the condition may

persist for long periods of time, and may, in rare cases, terminate fatally. The final result depends naturally upon the constitutional affection with which the purpura is associated.

A few cases of purpura rheumatica have been treated with Rheumatism Phylacogen (see page 29).

SPECIMEN CASES ABSTRACTED FROM OUR RECORDS, ILLUSTRATING THE USE OF RHEUMATISM PHYLACOGEN IN PURPURA RHEUMATICA.

Case 1.—L. M., aged 50, widow. Attending physician, Dr. V. Diagnosis, purpura rheumatica. Admitted to hospital at 3:30 P.M., April 20, 1911. Patient had acute rheumatism when 18 years old, and has had repeated mild attacks since. Present illness began about the first of April, with pain in wrists, hands, and right shoulder; joints immobile, painful and swollen. Expression agonized. Purpuric spots over upper and lower extremities.

April 20, 1911: 8 P.M., temp. 102°, pulse 112, resp. 26. Initial pulse. Oil gaultheria locally. Sod. salicylate gr. xx, sod. bicarb. gr. xx, t.i.d. No apparent effect on condition.

April 21: Morphine, gr. ¼ hypo.; 5 P.M., temp. 101°, pulse 120, resp. 24. Injected 10 Cc. Rheumatism Phylacogen, subcutaneously; 6 P.M., chill lasting 15 minutes; 8 P.M., t.p.r. 106.4°-110-24. Pain in joints relieved within two hours. Perspiration profuse.

April 22: 10 P.M., 102.2°-112-24; 10 Cc. Rheumatism Phylacogen, subcutaneously; no chill, profuse perspiration.

April 23: 4 A.M., 102.4°-110-26; 4 P.M., 100°-108-26; 5 P.M., 10 Cc. Rheumatism Phylacogen subcutaneously; 5:30 P.M., chill lasting 30 minutes, slight perspiration; 6:30 P.M., 105.2°-128-32.

April 24: 8 A.M., 100°-80-20; purpuric spots rapidly fading; 8 P.M., 100°-88-24.

April 25: 8 A.M., 100°-88-24; marked improvement in every way; 8 P.M., 99°-100-26.

April 26: 8 A.M., 100°-108-24. Improvement continuous.

April 27: Patient allowed to sit up.

April 30: Discharged cured.

Patient received three injections of Rheumatism Phylacogen, beginning April 21st and ending April 23d. The purpura faded quickly, and the joint condition was symptomatically cured. (C-204.)

Case 2.—G. L., aged 13, schoolboy. Service of Dr. E. LeF. Date of admission, May 15, 1912. Diagnosis, pleurisy (serous); acute amygdalitis (streptococcic); dry pericarditis and purpura rheumatica. Family history negative. Pleurisy one month ago (April 15th).

May 17: Thoracentesis; 750 Cc. straw-colored fluid, sterile.

May 18: Tonsils moderately swollen, red, and covered with mucus; no exudate.

May 22: Purpuric spots from pinhead to pea size on chest, anteriorly, and in both axillæ; thin whitish exudate on tonsils.

May 23: Ecchymotic areas on both elbows and forearms. Right forearm red and swollen. Complains of pain in extremities, chest and neck. Necrotic ulcers one inch in diameter on each tonsil. Culture from throat, streptococcus.

May 25: Great difficulty in swallowing. Petechial rash on body extending. Petechiæ coming and going in crops. Temperature up to this time of septic type, 99° to 103°. Pulse 76 to 116.

June 2: Morning temperature 100°. Mixed Infection Phylacogen, 2½ Cc., administered subcutaneously; no chill; temperature rises to 101.6°. Afternoon temperature, 100.4°.

June 4: Morning temperature, 100°. Mixed Infection Phylacogen, 3 Cc., subcutaneously; chills; temperature rose to 102.6°.

June 5: Swelling, pain and tenderness of chest wall and extremities markedly diminished. Rash fading to

light brown and no new spots appearing. Throat looks much cleaner and slough has entirely disappeared. Patient decidedly brighter.

June 7: No articular pain. Temperature drops by lysis, reaching 99° today.

June 8: Temperature normal.

Examination of the blood on May 27th showed 8000 leucocytes, 71% polynuclear, and 29% lymphocytes; on June 3d, 10,000 leucocytes, 81% polynuclear, 18% lymphocytes, and 1% eosinophiles. On the 24th of May the Wassermann and Weil tests were applied, with negative reaction. May 26th, blood culture negative. Urine negative up to June 2d, when a few hyaline casts were found.

Both Drs. Le F. and B. were decidedly impressed with the results obtained in this their first case of the kind, and steadfastly maintain that the Phylacogen and not the coincident treatment deserves credit. To determine their frank opinion I insisted that the temperature reduction was a coincidence, and not due to Phylacogen. They would not agree with me. The rapid improvement in the general condition and appearance of the patient was remarkable. (C33 & Cl.)

PYORRHEA ALVEOLARIS.

Pyorrhea alveolaris or Riggs' disease consists of an inflammatory condition of the margins of the gums, accompanied by a muco-purulent discharge which arises from pockets or pouches extending a greater or less distance along the roots of the teeth. In consequence of this process the tissues of the gums shrink, and, together with the alveolar border, become atrophic; the fangs are thereby uncovered and the teeth loosened, so that after a while a natural cure is established by the patient becoming edentulous. The process may be limited to a few teeth, or it may involve many. It is always preceded by an excessive deposit of tartar, beneath which bacterial infection occurs, the inflammation spreading down along the peridental membrane. Treatment consists in the removal of the tartar and the application of astringents and antiseptics, preferably peroxide of hydrogen, not only to the exposed mucous membrane but also into the pouches and pockets where pus collects. Treatment is often prolonged and tedious, but must be persisted in, not only to save the teeth, if possible, but also to prevent or remedy the toxemic and dyspeptic symptoms which are due to the absorption of pus. In many cases, however, the teeth have to be sacrificed (66).

A few cases of pyorrhea have been benefited by Rheumatism Phylacogen (see page 29).

SPECIMEN CASES ABSTRACTED FROM OUR RECORDS, ILLUSTRATING THE USE OF RHEUMATISM PHYLACOGEN IN PYORRHEA ALVEOLARIS.

Case 1.—Patient, female, aged 44. Had chronic articular rheumatism and pyorrhea for years. Pain in joints and teeth constant, never free. Several teeth elongated, due to pyorrhea. Patient was given 5 Cc. of Rheumatism Phylacogen the first day, with typical reaction—chill, rise of several degrees of temperature, and profuse perspiration. Second day, same dose, same reaction. Third day, 10 Cc.; reaction quite severe, with disappearance of all pain. Fourth, fifth and sixth days, 10 Cc. daily, each dose being followed by

intense reaction. The patient was entirely well after the sixth injection. One noticeable feature was that the teeth which were elongated from the pyorrhea had settled back and become perfectly solid. Patient has returned to her home and writes that she is entirely free from pain and is doing all her own housework and garden work; that she would gladly go through another course if only to get relief from the pain about the teeth. (M1.)

Case 2.—F. G., white, male, aged 35. Attending physician, Dr. S. Admitted August 24, 1912. Diagnosis, chronic gingivitis. Examination showed some atrophy of ear drumhead, upper molar teeth on left side greatly decayed, and gums tender; restriction in motion of jaws, possibly due to the extension of inflammation from teeth. Removal of the decayed teeth was advised.

Aug. 25: Morning, temperature, pulse and respiration normal. 10:15 A.M. 5 Cc. Rheumatism Phylacogen subcutaneously; decided chill, headache and malaise. 5 P.M., t. p. r. 103.2°-120-26.

Aug. 30: Morning, t. p. r. normal. Discharged much improved. Referred to dentist. In addition to the Rheumatism Phylacogen, routine rheumatism treatment was given during the patient's stay in the hospital. (C2.)

Case 3.—Mrs. K., aged 60, widow. Attending physician, Dr. H. L. Patient has had gradual involvement of wrists, elbows, shoulders, knees and ankles, with some deformity and deposits, the disease extending over a period of about two years. Five months ago Drs. U. and H. diagnosed the disease as a septic metastatic arthritis due to pyorrhea alveolaris. They made an autogenous bacterin and gave it to her steadily until the latter part of October, without result. Oct. 27th, Dr. L. gave her ½ Cc. Rheumatism Phylacogen; Nov. 6th, 1 Cc.; Nov. 10th, 2 Cc.; Nov. 16th, 3 Cc.; Nov. 22d, 4 Cc.; Nov. 28th, 4½ Cc.; Dec. 1st, 3.2 Cc.; Dec. 8th, 6.2 Cc.

About five minutes after the 6.2 Cc. dose was given the patient complained of itching in the palms and around the mouth. The tongue then swelled visibly, so the patient could not talk. Urticarial spots appeared on the body, followed by a measles-like rash and accompanied by a severe chill. During the height of the symptoms the pulse was 160. the symptoms gradually disappeared, and Dec. 9th the patient was apparently normal. (C3 & C426.)

ARTHRITIS DEFORMANS.

Arthritis deformans was well named by Virchow (52), who singled out its characteristic deformity as the name by which it should be known, a deformity that is dependent upon muscular contraction and tissue destruction.

The disease is polyarticular and symmetrical; it is invariably insidious, and therefore its progress cannot be divided into acute, subacute and chronic stages, as some writers have described it. It usually progresses slowly, involving more and more the peripheral joints, with its initial sign of stiffness, and then weakness and swelling, the joints assuming now the characteristic spindle shape, and again becoming nodular. This nodular appearance may be due to atrophy of the periarticular structures as well as to thickening of the joint membranes or bones. The deformity increases, and finally leads to crippling.

There are times when the disease progresses less rapidly, even in severer cases, but it cannot be said that there is ever an intermission. Periods of apparent quiescence do occur and sometimes last for years,

but the disease inevitably returns, destroying whatever might have been left of motion, of comfort, or of figure, until the luckless patient passes into an irretrievable state of suffering, wretchedness, and deformity.

The classifications of this malady have been not only unintelligent, but almost unintelligible, every authoritative writer introducing without the slightest hesitancy some new set of terms to conform to his own fancy, so that Jones' osteo-arthritis has become Goldthwaite's atrophic arthritis, and one writer's metabolic arthritis becomes atrophic degenerative arthritis to another. Perhaps a more correct idea of the pathology will eventually relieve us of this confusion.

All recent writers state that arthritis deformans is associated with some septic disorder which has occurred shortly before the appearance of the first symptoms, lowering the vitality sufficiently for a toxemia to manifest itself through the spinal cord, or otherwise, in the way that is characteristic of this malady. The more carefully we go into the histories of these cases the more certain these facts become.

Analyses of urine and feces may show intestinal putrefaction, chronic pancreatitis, duodenal indigestion, and evidences of an intestinal toxemia that may well be responsible for the perversions of chronic arthritis.

Again, such other septic lesions have been found as carious teeth, enlarged tonsils, chronic nasal and post-nasal catarrh, leucorrhea, endometritis, rectal ulceration, pyorrhea alveolaris. In fact, the Cambridge report alleges that over 50 per cent. of its cases followed and were due to the slowly developing toxemia of carious teeth and the progressive necrosis of the alveoli that is a feature of Riggs' disease.

So it is practically certain that there is some form of infection somewhere. Upon the discovery of the primary focus depends the prognosis of the particular case of arthritis deformans, and not upon any matter of hygiene, or amount of sunlight, or rest, or balneology, or physical or electro-therapeutic treatment.

If definite changes have already occurred in the joints, a perfect restoration may not be expected, but with the proper treatment there will in all likelihood be an arrest of the progress of the disease, a matter of immense consequence to these unfortunates. Often tonsils that manifest no evidence of disease on the surface have been found to contain streptococci in deep pockets.

Cox, in his presidential address before the Manchester Medical Society (53), after directing attention to the prevalence of arthritis deformans in England, cited the records of the Devonshire Hospital, Buxton, which showed an average of 625 cases of infective arthritis annually, including arthritis deformans and cases of gonorrhea, and septic, syphilitic and tubercular joint infections. He states that the causation of the disease is most probably some as yet undiscovered organism or organisms most easily affecting individuals at certain stages of development, such as puberty or the climacteric period, when the health has been vitiated by

oral sepsis, digestive disturbances, chronic intestinal stasis, or abnormal conditions of the genital organs.

Individuals suffering from pneumococcic, influenzal, rheumatic or gonococcic infections are liable to develop arthritis deformans, but in all probability this is brought about by mixed or added infection. The theory of the neural origin of arthritis deformans will probably have to be given up altogether.

There is urgent need for thorough research work by experienced and competent bacteriologists to unravel the many problems of arthritis deformans. As regards treatment, early and accurate diagnosis is the first essential. Few drugs are of much avail. The patient's strength must be kept up by proper and generous diet. Chronic intestinal stasis must be thoroughly dealt with. Prognosis depends upon the severity of the infection, the circumstances of the patient, heredity, etc.

The treatment of this affection with Rheumatism Phylacogen was undertaken experimentally, with no expectation of good results, but simply for the purpose of ascertaining what could be accomplished, if anything. In a number of instances in which the condition had been diagnosed by competent physicians as true arthritis deformans, a great deal of benefit has been produced by the administration of the Rheumatism Phylacogen, the good results consisting of relief from pain and greatly increased mobility of the affected joints. The best results, of course, have been obtained in those cases in which the condition was of comparatively recent origin. While nothing is claimed for Rheumatism Phylacogen in cases of arthritis deformans, the results so far obtained are encouraging. Great care in diagnosis should be exercised and the condition definitely differentiated from the arthritic changes due to gonorrheal infection, locomotor ataxia, or true gout. We have the records of eighty-six cases diagnosed as arthritis deformans, in fifty-two of which the Phylacogen treatment is reported to have proved successful, while in thirty-four it failed.

SPECIMEN CASES ABSTRACTED FROM OUR RECORDS, ILLUSTRATING THE USE OF RHEUMATISM PHYLACOGEN IN ARTHRITIS DEFORMANS.

Case 1.—F. L. K., aged 53, married. Seven years ago a joint in the index finger became swollen and painful, and this was soon followed by a general involvement of all joints. A variety of therapeutic measures was instituted without result. The patient was first seen in connection with the use of Rheumatism Phylacogen on Nov. 14, 1911. Examination disclosed typical seal-fin deformity of the fingers of both hands, the left being worse than the right; elbows and knees affected; left knee and right elbow more swollen and painful than other joints. Diagnosis of arthritis deformans made upon history of case and present condition; 2 Cc. Gonorrhea Phylacogen injected under the skin; Nov. 15, 5 Cc.; Nov. 16, 8 Cc.; Nov. 17, 8½ Cc.; Nov. 18, 10 Cc. Local reaction typical but not very severe; general condition improved. Two cubic centimeters of Rheumatism Phylacogen was then injected into the vein; the injection

was followed by a severe chill; temperature 103°; impossible to count pulse. Patient markedly improved; turned on right side quickly and without effort, for the first time in five years. Nov. 20, patient very much better; walked to the bath-room and shaved himself—first time in years. On this date 4 Cc. Rheumatism Phylacogen was injected into the vein, followed by chill lasting 40 minutes, more severe than previous one. Nov. 22, 10 Cc. Rheumatism Phylacogen in the vein; slight headache. Nov. 23, patient very much improved, feels fine, all joints better. Patient claims all pain in knee, back, shoulder, hips, wrists and ankles has left, and feels perfectly delighted with the splendid results. No more Phylacogen will be administered unless some definite need arises. Kidneys and bowels are normal. Patient sleeps well and is much stronger.

Dec. 10, patient weighed 119 pounds; last July he weighed 105. Right knee and left elbow are slightly painful on motion, but there are no other joint pains. Patient sleeps, has good appetite, is supple, and feels better than at any time in past five years; can use fingers to button collar, first time for years. Two more doses of Rheumatism Phylacogen were given for relief of the slight pain in elbow and knee. On Dec. 10, 5 Cc. was injected into the vein, followed by chill lasting 32 minutes. Dec. 12, patient free from pain in all joints; attending physician and patient both greatly pleased with results. Dec. 23, patient continues to improve, is attending to his daily business, takes in the theatres, and is generally delighted with his remarkable improvement. (C9.)

Case 2.—M. H. H., aged 45, male. Rheumatism first noticed seven years ago. Six years ago went to sanitarium and was somewhat improved. Four years ago general joint involvement began; patient was obliged to give up all occupation. First seen Nov. 6; face pinched; pain in all the joints; index, middle, and third fingers of right hand distorted, swollen, very sensitive, and stiff, with entire lack of motion; index and middle fingers of left hand swollen and painful, with slight motion; both knees flexed, with partial ankylosis, swollen and painful. All remedies for rheumatism had been tried without effect. Nov. 7, 8½ Cc. Rheumatism Phylacogen injected under the skin; slight local reaction. Nov. 9, 6 Cc. Rheumatism Phylacogen injected into the vein; severe chill, headache, nausea. Nov. 10, 5 Cc. Rheumatism Phylacogen in the vein; chill, temperature, reaction. Nov. 11, 5 Cc. Rheumatism Phylacogen in the vein; typical reaction. Nov. 12, no Phylacogen given. Nov. 13, 10 Cc. Rheumatism Phylacogen in the vein; severe reaction. Nov. 14, 5 Cc. Rheumatism Phylacogen under the skin. Nov. 16, 5 Cc. in the vein; severe reaction. Nov. 17 and 18, 5 Cc. Rheumatism Phylacogen. At this time patient opened his fingers and joints far better than before, and there was improvement in the general condition; joint not sensitive, less swollen; limbs could be straightened considerably more than before treatment. (C8.)

Case 3.—Mrs. W. F., housewife. Joints in fingers of both hands swollen and tender; seal-fin deformity; right elbow ankylosed; both hips and knees swollen, stiff and painful; wrists and shoulders sensitive; pain in feet. Diagnosis, arthritis deformans. From Dec. 1, 1911, until Dec. 20, patient received nine doses of Rheumatism Phylacogen, ranging from 4 to 10 Cc., under the skin, with typical local reaction and very slight constitutional reaction. From Dec. 14 to Dec. 20, patient received six injections of Phylacogen, ranging from 2 to 6 Cc., in the vein, with typical reaction evidenced by chill, rise of temperature, etc. Patient was discharged from the hospital greatly improved; claims to have absolute freedom from pain, and is as supple as before the disease began ten years ago; is delighted with her condition and feels like doing a full day's work. The attending physician states that the results so far are marvelous. (C10.)

Case 4.—Woman of 45; inflammatory rheumatism with fibrous fixation of ankle, the foot being so much drawn

that patient was unable to walk. First injection of 10 Cc. Rheumatism Phylacogen was followed by slight reaction. A second injection of 10 Cc. was given, and in this case no reaction followed, but the fixation was relieved, permitting patient to walk. Monetary conditions prevented the further use of Phylacogen. (M18.)

Case 5.—Man of 40; has had four attacks of rheumatism since he was 18, and each time was confined to his bed for many months. The physician reports as follows: "Right jaw and shoulder completely ankylosed, seal-fin deformities on both hands, every other joint swollen and immovable; in bed for three months this time, and had been under old-style treatment. There was high temperature and the patient was in very severe pain. Treatment: First injection, 5 Cc. Rheumatism Phylacogen subcutaneously; severe local and some systemic reaction. Second injection, 1 Cc. intravenously; severe systemic disturbances coming on 27 minutes after the injection; nausea lasted twelve hours. Third injection, 2 Cc. intravenously, followed by less disturbance. All subsequent injections were intravenous, and a reaction followed in each instance. Treatment ceased when 40 Cc. of Rheumatism Phylacogen had been used. Patient showed improvement from the second dose. The temperature gradually became normal. At the end of the Phylacogen treatment the patient's joints were baked every day for eight days. Results: The patient recovered 50 per cent. of normal mobility in the joints that had apparently been ankylised; pain and swelling disappeared from the others. Of course no impression was made on the seal-fin deformities of the hands. Saw the patient in July on top of a load of hay, and he assured me of his well-being." (M27.)

Case 6.—Woman of 50, who for nine years suffered from arthritis deformans. She received nine injections of Rheumatism Phylacogen, with the result that a great improvement was effected in the condition of her arms and hands, but not much improvement in her limbs. The lady scared her daughter one day by raising her hands above her head, something she had not been able to do for years. (M23.)

Case 7.—Married woman of 32; had rheumatism in joints three years ago, followed by deformity of joints of hands and feet. The pain was extreme and constant; the patient, who weighed only 98 pounds, had to be carried about on a pillow. Diagnosis, arthritis deformans. Rheumatism Phylacogen, 5 Cc., was given the first day, followed by marked reaction and a temperature of 103°; 5 Cc. second day, followed by same reaction; 10 Cc. daily for six more days, with complete disappearance of all pain; patient able to use some of the previously affected joints, even to walk to the doctor's office, and attends to her shopping. She now weighs 124 pounds. Hands and feet yet deformed, but pain has disappeared. Rheumatism Phylacogen certainly has performed wonders in this case. (M24.)

Case 8.—E. G., aged 50, male, single, bookkeeper. Service of Dr. G. D. H. In January, 1911, patient began to have pain and swelling in left foot and pain between shoulders. The joints of both feet, ankles, hips, and elbows, then gradually became involved. No deformity except in feet. Knee reflexes increased. Unable to raise arms on account of muscular involvement. This condition gradually became worse until ten weeks ago, when he was brought to M—— on a stretcher. Patient denies all specific or gonorrheal history, and Moro tuberculin test made by Dr. C. N. C. last April was negative. Ten weeks ago patient was taken to Asbury Hospital, unable to move. Dr. H. diagnosed his case as chronic progressive arthritis with deformity, and gave hopeless prognosis. Patient was given 75 minims Rheumatism Phylacogen subcutaneously, every day for three weeks; then 75 minims daily, intravenously, for three weeks; then 75 minims, intravenously, every other day for six doses. He had probably 450 Cc. Rheumatism Phylacogen altogether. After the fourth week of treatment he was unable to turn over

without pain. After six weeks he was up and around. Can walk a short distance without cane or crutches. Both feet are somewhat swelled, with some eversion. Knee reflexes exaggerated; no other ataxic symptoms but some muscular paralysis. Patient is up and around now, whereas he was absolutely bedridden before. (C24.)

Case 9.—J. B., aged 50, male, single. Attending physician, Dr. H. H. Diagnosis, arthritis deformans. A case of rheumatism of 18 years' duration, during the greater portion of which time the patient was never free from pain. All joints became involved about 10 years ago and the general condition had gradually become worse; joints became enlarged and hardened—seriously impeding mobility. The feet became very bad, next the knees, then the elbows and hands. Has been at M—— and Hot Springs without material benefit. Was very bad for about one month before taking treatment for last bad attack. Condition desperate, with no indication of relief. No other illness of comment. On examination, all joints were found to be in constant pain, red, badly swollen and hardened, especially those of the hands.

Rheumatism Phylacogen was given subcutaneously—first and second doses 5 Cc. each, followed by daily 10-Cc. doses. Patient's condition seemed to be much worse; reactions fairly vigorous, with great prostration, so patient and Dr. H. became alarmed and discontinued treatment after the tenth injection. The joints were then fearfully red and swollen; patient could not move in bed, and his general condition was pitiful. There was no pain, however, after the seventh injection. The joints then began to soften, and five of the finger joints "liquefied" and were lanced, emitting a dark syrupy-looking liquid in great quantity. One toe was lanced and fluid "squirted" from it. Patient says that nearly half a cupful of fluid was obtained; nurse "squeezed" fluid from fingers for several days. A "chalky-looking stuff" also came from finger joints.

Five weeks have now elapsed since the Phylacogen treatment, and patient walks about by the aid of a cane, has had no pain, and is gaining strength daily. He is well pleased with the results.

Note: Dr. H. "took a chance" on this case, fully aware that no claims are made for the Phylacogen in arthritis deformans. Conclusion: Rheumatism Phylacogen was of very great value in this case. (C20.)

Case 10.—F. S., aged 42, married. Attending physician, Dr. V. N. M. Diagnosis, polyarthritis deformans, chronic. Both father and mother died of typhoid fever, the former at 38, the latter at 49. One brother living, in good health. One sister dead, aged 25, of tuberculosis. No history of rheumatism. Patient began to have pains in knees and legs about three years ago, up to which time he had enjoyed robust health. By degrees one joint and then another became involved, until crutches became necessary and the patient was practically helpless. Examination disclosed seal-fin deformity of fingers; both elbows, both wrists, both knees and both ankles swollen, painful and somewhat deformed; stiffness and pain in both shoulders, back and hips; almost complete lack of motion, marked anemia, poor appetite, coated tongue, insomnia. All the anti-rheumatic remedies, including patent medicines and osteopathy, had been tried with no benefit. On Jan. 31, 1912, 2 Cc. Rheumatism Phylacogen was injected subcutaneously; Feb. 1, 4 Cc.; Feb. 2, 6 Cc.; Feb. 3, 8 Cc. Typical local reaction followed each injection; general condition and pain remained about the same. Feb. 7, 11:55, 2 Cc. Rheumatism Phylacogen; 12:20 P.M., chill lasting 30 minutes; 4 P.M., temp. 101°, pulse 110, resp. 20. Feb. 8, 10:55 A.M., 4 Cc. Rheumatism Phylacogen; 11:50 A.M., chill lasting 55 minutes; 1 P.M., t. p. r., 100°-110-20; 3 P.M., 102°-120-19, headache, sweating; 5 P.M., 101°-118-17. Feb. 9, 10:30 A.M., 6 Cc. Rheumatism Phylacogen; 1 P.M., 100°-96-14, chill lasting 30 minutes; 3 P.M., 100°-96-16; 6 P.M., 98.6°-90-14. Feb. 10,

12:40 P.M., 8 Cc. Rheumatism Phylacogen; 1:25 P.M., chill lasting 35 minutes; 3 P.M., 100°-92-18; 5 P.M., 99°-86-16; 8 P.M., 98.6°-72-14. Feb. 11, 12:10 P.M., 10 Cc. Rheumatism Phylacogen; 12:55 P.M., chill lasting 30 minutes; 3 P.M., 100°-90-20; 8 P.M., 98.6°-84-18. Feb. 12, 12:20 P.M., 11 Cc. Rheumatism Phylacogen; 1 P.M., chill lasting 35 minutes; 2 P.M., 98.6°-90; 3 P.M., 100°-90; 7 P.M., 99°-84. Feb. 13: Feels very comfortable this morning.

Dr. M. says, "This patient has unquestionably been benefited, has better motion, less pain, and condition is generally improved."

The patient is now practically free from pain, has greatly increased motion, can handle himself fifty per cent. better, appetite good, tongue clean, sleeps well, and is delighted with the results. Of course the deformity still exists, though his joints are much more supple. (C12.)

EFFECTS OF PHYLACOGEN UPON THE HEART IN CASES OF RHEUMATIC INFECTION.

It has been maintained that the heart is implicated in every case of rheumatic infection, usually as a myocarditis. Be this as it may, there can be no doubt that in many cases the inflammation of the cardiac muscles or valves is temporary and the structures recover without damage (54).

Among the lesions more or less characteristic of articular rheumatism are the nodules in the myocardium first observed by Romberg and by Bret, and studied more fully by Aschoff, Coombs, Fraenkel, and others. Briefly, these are minute, discrete foci of embryonal cells and leucocytes that arise especially about the smaller vessels of the heart muscle. They appear to occur most commonly in the subendocardial parts of the septum, and in time they may change into scars. Fraenkel (55) found them in seventeen of twenty cases with a history of rheumatism. Failing to find them in other infectious diseases he concluded that they occur only in genuine rheumatism, although not necessarily in every case. It is interesting to note that Fraenkel doubted the streptococcal nature of rheumatism because streptococci, though reproducing the picture of rheumatism in rabbits, had not been shown, up to the time of his writing, to cause myocardial nodules in this animal. In view of the fact that his own observations indicated that the myocardial nodules may not occur in all cases of rheumatism, it might be questioned whether their absence in rabbits injected with streptococci should be accorded such significance. Recently, however, it has been demonstrated by Wachter, by Bract and Wachter, and by Leila Jackson (56) that the injection of rabbits with streptococci from various sources does produce focal myocardial lesions similar to those found in the human heart in articular rheumatism. The streptococci used by Jackson in her experiments were obtained from the various forms of streptococcus infection of the milk which was epidemic in Chicago last winter and in Boston the year before. In these epidemics joint involvements were not infrequent, more or less typical cases of acute rheumatism occurred, and arthritis also developed in many of the rabbits

injected with the streptococci. While it would be desirable to repeat the experiments with strains of streptococci from typical cases of articular rheumatism (57), the results already obtained, especially those by Jackson in which distinctively rheumatic myocardial foci were produced, support the view that streptococci cause acute rheumatic fever, or at least play a definite part in the process.

In cases in which the patient admittedly has a bad heart, the dosage of Phylacogen should be arranged with great care. In the beginning the treatment should consist of *small* doses, 1 Cc. *subcutaneously,* and subsequent doses might be increased by ½ to 1 Cc. If the treatment is to be intravenous the *first dose always should be administered subcutaneously,* and *should not amount to over* 1 Cc.; the size of the subsequent doses, in the vein, should be graduated from one-fourth or one-eighth of a cubic centimeter, each dose being diluted with sterile salt solution and injected with extreme slowness and care. The pulse rate, the blood pressure and respiration should be carefully watched, and the next succeeding injection should not be given until the pulse has resumed the rate noted before the injection, or slightly less.

SPECIMEN CASES ABSTRACTED FROM OUR RECORDS, ILLUSTRATING THE USE OF RHEUMATISM PHYLACOGEN IN CASES WITH CARDIAC LESIONS.

Case 1.—Boy of 12; had suffered acute attacks of articular rheumatism six or eight months before treatment. Had been confined to an invalid's chair, propped up and unable to move. The worst case of endocarditis the physician had ever seen; patient had also a very audible heart murmur. The knees, ankles, elbows, wrists and fingers were stiff and swollen and very painful. Treatment was begun with a 5-Cc. of Rheumatism Phylacogen dose the first day, then 10 Cc. was given each subsequent day until 45 Cc. had been administered. After the third dose the patient was absolutely free from any rheumatic condition, except the heart murmur, which was greatly improved. Other than the usual characteristic reactions, there was absolutely no untoward effect from the Phylacogen, notwithstanding the large (10-Cc.) doses given to this little twelve-year-old. M2.)

Case 2.—Dr.——, of ——, W. Va., had long been a sufferer with inflammatory rheumatism and endocarditis, taking 35 to 50 grains of salicylates to relieve the symptoms. In May, 1912, the patient was sick for two weeks; temperature 104°; delirious. As the case seemed hopeless, I sent for four packages of Rheumatism Phylacogen, which arrived Thursday. On Monday I telephoned for six, and again for eight more. Improvement followed the first injection, and to-day the patient is up and around, with no endocarditis—completely recovered—a case of bringing the patient out of the grave. (M3.)

Case 3.—W. B., aged 22, barber. On the 1st of September I was called out to see this boy, who had been treated without results for tonsillitis and rheumatism by a physician of a neighboring town. An abscess formed in the tonsil, which was opened. Patient seemed to improve for two days, after which the right knee, ankle, and hip became swollen and tender; temperature 104°. He received 15 grains of aspirin, with temporary relief. The other joints became involved. One night I was called out by his father, who said the boy was dying. I examined him and found a beautiful case of endocarditis. Five years before this he had had an attack

of rheumatism which kept him in bed three months. Present symptoms: joints swollen, tender and painful, the slightest motion causing severe pain; shortness of breath, with pain over heart; temperature 104°. A characteristic grating murmur was audible at the apex, with an increased second sound in the aortic and pulmonic valves. Diagnosis, rheumatism and endocarditis. On Sept. 14, patient received 5 Cc. Rheumatism Phylacogen with the following results: temperature 105°, chills and restlessness, increase of pains. Sept. 15, 10 Cc. given; temperature went up again to 105°, with chills; pains not as bad as on the previous day. Sept. 16, 10 Cc. given; temperature went down to 100°; no chills and no pain. On the morning of the 17th patient was sitting up in bed, throwing his arms around and feeling fine, but still the murmur was present. I continued to give him Rheumatism Phylacogen and by the time six injections had been given the murmur had disappeared. The patient said: "Say, doctor, what kind of medicine did you give me It certainly works fine." Patient rests well, and asked to go to work the tenth day. (M4.)

Case 4.—Man of 33; acute articular rheumatism, reported by Dr. R. A. Diagnosis. acute articular rheumatism complicated with acute pericarditis. The joints were very red and swollen, and very painful—in fact, so much so that the bed covers had to be held up over them. The patient was given 10 Cc. Rheumatism Phylacogen in the first injection, and 10 Cc. each day for five consecutive days, with complete recovery. The pericarditis, which was very extensive at the outset, disappeared completely.

Case 5.—Mr. O., aged 38, farmer. Service of Dr. T. A. M., private practice. Diagnosis, rheumatism with endocarditis.

An acute attack of articular rheumatism with endocarditis; strong murmur; temperature 103°; swollen elbow and shoulder; swelling moved from one joint to another; severe pain and swelling. Two years before he had been in bed four months with same symptoms. On June 10, 1912, began with aspirin, which was given for two days, then Rheumatism Phylacogen, the first dose of which, 5 Cc., caused a marked reaction, chill and nervous manifestations. On the second day following, I administered 10 Cc., and 10 Cc. was then given every second day for three more doses, making 45 Cc. in all. Reactions were less with each succeeding dose. After the first dose, the pain and swelling subsided so that patient could rest comfortably. Pain disappeared entirely after the third dose. Patient asked for more Phylacogen when he saw how much he was relieved. (M1573.)

Case 6.—Reported by Dr. F. deP.: "On August 2, 1913, I was called to attend Mrs. C. and found her suffering from a severe attack of polyarticular rheumatism. This attack came on about the beginning of May. Prior to my seeing her she had been treated with salicylates and by other established means without improvement. The patient is a married woman, 30 years of age. Her history is negative so far as gonorrhea, syphilis, varicose veins, and flat-foot are concerned, but her general health had been poor. She had had several attacks of rheumatism during the preceding year. When first seen by me she had been confined to bed for two months; her arms were drawn up close to her chest, and the joints fixed. Her temperature varied from 101° to 103° F., with characteristic perspiration. The knees, ankles, wrists, elbows and maxillary joints were affected—red, swollen and painful. She could not feed herself and was unable to get out. She was placed on Rheumatism Phylacogen, receiving in all six doses, each of 10 Cc., injected subcutaneously. There was a characteristic reaction after each administration of the Phylacogen, the most severe occurring three hours after the initial injection, and for a short time the affected joints were most painful. There was a chill lasting two hours, after which the temperature rose to 104½° F. Before the first injection, which was given about 2 P.M., the patient had eaten a regular meal, and

during the reaction which followed she suffered from headache, indigestion and vomiting. Noting that the reaction was so severe, I gave instructions that the patient be placed on a milk diet on the day when the Phylacogen was next to be administered; and thereafter there was no headache, indigestion and vomiting. Hence a milk diet was prescribed for each day on which subsequent injections were to be given. The patient had mitral insufficiency, brought on by one of her attacks of rheumatism, but the Rheumatism Phylacogen did not affect her heart, despite the fact that Mexico City has an altitude of 7500 feet. From the first dose the patient improved, and she was discharged as cured after six bulbs had been used." (M1174.)

Supplementing the above case records, we quote from a paper by Dr. G. C. Crandall, of St. Louis, entitled "Schafer Vaccines in the Treatment of Rheumatism," printed in the *Journal of the Missouri State Medical Association* for June, 1912, as follows:

"In none of my cases did I observe any heart lesions developing incidental to the immediate attack, and the few which showed heart lesions from rheumatism or other causes were not disturbed by the treatment. I may say that Schafer Vaccine or Phylacogen for rheumatism appears, from my experience so far, to be of definite value. It cures so promptly most acute and subacute cases that I think it will safeguard the heart from the unpleasant acute and chronic complications."

BIBLIOGRAPHY OF RHEUMATISM PHYLACOGEN.

For the benefit of those who are particularly interested in Rheumatism Phylacogen we append hereto a list of the papers which have appeared in medical periodicals, etc., referring to *Rheumatism Phylacogen.* This will be serviceable to those wishing to acquaint themselves with the literature on this special subject.

1. "A Modified Vaccine Therapy Based Upon the Theory of Multiple Infection." By Dr. A. F. Schafer, Bakersfield, Cal. *Therapeutic Gazette,* April 15, 1911.

2. "Phylacogen." By Dr. L. Daily, Houston, Tex. *Medical Bulletin of Harris Co. Med. Soc.,* Houston, March, 1912, p. 21.

3. "Results Obtained With a Modified Vaccine." By Dr. Louis D. Green, San Francisco, Cal. *Cal. State Jour. of Med.,* April, 1912, p. 160.

4. "Schafer Vaccine Treatment for Rheumatism." By Dr. G. C. Crandall, St. Louis, Mo. *Jour. of the Missouri State Med. Assn.,* June, 1912, p. 492.

5. "Treatment of Rheumatism with Rheumatism Phylacogen." By Dr. Edw. B. Richey, Louisville, Ky. *Charlotte Med. Jour.,* July, 1912, p. 12.

6. "Rheumatism Phylacogen." By Dr. W. H. Foreman, Indianapolis, Ind. *Indianapolis Med. Jour.,* July, 1912, p. 293.

7. "New Treatment for Rheumatism." Editorial in *Arkansas Med. Jour.,* July, 1912, p. 55.

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31. "Phylacogens: Unique Therapeutic Results." By B. F. Zimmerman, M.D., Louisville, Ky. *The Lancet Clinic,* February 15, 1913, p. 184.

32. "Phylacogens as a Cure for Rheumatism, Mixed Infections and Gonorrhea." By Gustav Schirmer, M.D., Chicago, Ill. *The Medical Fortnightly,* March 10, 1913, p. 89.

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42. "Chronic Articular Rheumatism." By Dr. Francisco H. Alvarez, Havana. *Revista Medica Cubana,* April, 1913, p. 192.

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EXTRACTS FROM PUBLISHED PAPERS ON RHEUMATISM PHYLACOGEN.

AIDING THE PROTECTIVE PROCESSES OF THE BODY.

In referring to Dr. Schafer and his work with bacterial filtrates the editor of the *Therapeutic Gazette** states: "He did not advocate the employment of any one strain of organism, but rather that the educts of a number of strains should be mixed together and used in this manner, the idea being that practically all infections are associated infections, and that while one organism may predominate, it is usually associated with a number of others in sufficient proportions to make them influential factors in the case. We did not publish his article until we had had presented to us evidence, by practitioners other than Dr. Schafer, that his method had given good results, and until so many observers had expressed this view that we felt we had no right, in view of our lack of experience, to condemn the plan. * * *

"Recently Schafer's so-called phylacogens have been vehemently attacked, but no evidence that this attack is based on experience has been adduced. The attack seems to be based upon the theories which animated us when we appended the foot-note to Dr. Schafer's article at the time we originally published it, and the difference between our attitude then and now is that we have seen results which have forced us to cast theory aside and accept fact. * * *

"As Hervey well says in a recent issue of the *New York Medical Journal:* 'The practice of medicine is replete with problems which depend for solution, not upon exact experiment, but upon the judgment of experience.' In other words, we are forced, by lack of scientific knowledge, to use many remedial agents, because they have been found curative, and every time they are employed a more accurate conception of their exact value and manner of action is approached until finally we discover their exact value. If the phylacogens are worthless, as some criticisms based on theory assert, they will soon go to the limbo of forgotten things; but if they do not do harm and often do great good, they will be more and more employed, because our first duty is to cure if it be possible. At present all the facts at hand point to the view that they are not cure-alls but very valuable in many cases, and until the present evidence is refuted by experience they must be given fair trial and not condemned offhand, the more so as trial so far gives good results in suitable cases and only theory condemns."

*March, 1913.

REPORT OF A CASE OF ACUTE ARTICULAR RHEUMATISM RESPONDING TO RHEUMATISM PHYLACOGEN.*

By John H. Nowlin, M.D., Chicago, Ill.

While this is but a single case, several very interesting points are brought out in the history. The patient was a woman of 48 years of age, with tachycardia following the death of her husband. Later suffered an attack of lobar pneumonia, and finally developed acute articular rheumatism. Large doses of salicylates were administered for five days, with no relief from pain. A total of six injections of Rheumatism Phylacogen was administered, ranging from 7 to 10 Cc. A troublesome cough, from which the patient had been suffering, was entirely relieved following the fourth injection, and she made a complete recovery from the rheumatism. Although the tachycardia was apparently relieved by the administration of Phylacogen, it returned two months after the treatment was discontinued.

OBSERVATIONS WITH THE PHYLACOGENS IN GENERAL PRACTICE.†

By Karl F. Snyder, M. D., Freeport, Ill.

Snyder reports four cases treated with Phylacogen, three of which were subacute articular rheumatism, and the fourth gonorrheal arthritis following an acute attack of gonorrhea, two years previously.

The first case was that of a man, 40 years of age, giving a distinct history of an acute attack of rheumatism six months previously, and followed by a gradual developing of a subacute infection. The patient received, in all, a total of seven doses of Phylacogen, with a very satisfactory result, and, at the time the case was reported, he was said to be perfectly well.

The second case was that of a woman, 60 years of age, presenting no previous history of an acute articular infection. A careful examination disclosed no point of infection. The condition had gradually progressed, involving particularly the smaller joints. A total of seventeen injections of Phylacogen was made, ranging in size from 5 to 7 Cc.; also a few small doses were given intravenously, the patient showing some evidence of improvement, but by no means making a recovery. A later report indicates that the patient is in about the same condition as prior to the treatment.

The third case was that of a lady 50 years of age, with no previous history of acute articular rheumatism but presenting a distinct infection of the ankle joint extending over a period of three years. There was a gradual extension of the arthritis to the knees and other joints of the extremities. She received a total of twelve subcutaneous injections rang-

*Therapeutic Notes, March, 1913.
†Medical Record, April, 1918.

ing in amount from 5 to 10 Cc.; also three doses intravenously, ranging from ½ to 1 Cc. This patient was said to be very much benefited by the treatment, but did not make a complete recovery, complaining of some pain during changes in the weather, but no active condition of rheumatism such as she had prior to the treatment.

The fourth patient gave a history of an attack of gonorrhea two years previous to the present involvement of the joints. Three doses of Phylacogen were given subcutaneously, ranging in amount from 5 to 10 Cc., and followed by the usual reactions. The man also received two injections of ½ and 1 Cc., respectively, intravenously, and these were followed by mild reactions. He left the hospital one week after the last injection, claiming that he felt better than he had for a year. The case was seen two months later, and, from every evidence, the patient was in perfect health.

After carefully observing the results in these cases, the author reaches the following conclusions:

"For all cases of chronic or subacute rheumatism, following or continuous with an attack of the true acute articular rheumatism, we have in this remedy (Phylacogen) practically a specific, and can generally depend upon 60 to 80 Cc. to be sufficient to produce an end result."

PHYLACOGEN IN ACUTE ARTICULAR RHEUMATISM—REPORT OF CASE.*

By J. S. Lowry, M. D., Smyrna, Tenn.

Some striking facts are set forth in this report of the author's experience with Rheumatism Phylacogen. It pictures a severe primary attack of acute articular rheumatism, involving the elbows, wrist, ankles and knees, the patient being unable to move her hands or feet, and having a temperature of 100° to 102°. She received the usual treatment for a period of ten days before Phylacogen was administered, but with no improvement. Following the first subcutaneous injection of 5 Cc. of Rheumatism Phylacogen a slight reaction occurred with marked relief from pain in the joints which had considerably subsided, allowing slight movements of the hands and arms. On the second day 5 Cc. of Rheumatism Phylacogen was again administered, followed by a distinct chill and marked improvement. The patient was now able to turn in bed without help. On the third day 10 Cc. was given, followed by slight reaction with complete relief of pain in all the joints. On the fourth day 10 Cc. Rheumatism Phylacogen was administered followed by a severe reaction. No Phylacogen treatment on the fifth day, but the 10 Cc. dose was repeated on the sixth day with a slight reaction and continued improvement. On the seventh day 10 Cc. was given, on the eighth day 5 Cc., and on the ninth day 5 Cc.

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*Medical World, May, 1913.

The patient was not only relieved of pain but the stiffness in the joints gradually disappeared. She was entirely free from the rheumatic condition two weeks after the last injection. At the end of four weeks she had regained weight, strength and appetite and manifested no symptoms of rheumatism. Lowry is under the impression that a smaller initial dose, say 2 Cc., of Phylacogen would be more desirable even though it might take longer to obtain the same results.

In conclusion he says: "One swallow does not make a summer," but, from the results obtained in this very severe case of acute articular rheumatism, I would say that we have never had anything for the treatment of this trouble which approaches Rheumatism Phylacogen."

PHYLACOGENS AS A CURE FOR RHEUMATISM, MIXED INFECTION AND GONORRHEA.*

By Gustav Schirmer, M.D., Chicago, Ill.

The author compares the brilliant results of the use of Phylacogen with the teachings of Professor Klebs, who, in his periodical, *Kausale Therapy,* proclaimed the fundamental principle that products of the metabolism of pathogenic bacteria exert an inhibitory and healing influence on the specific disease. He further states, "Klebs also defended the principle that the microörganisms which accompanied the specific bacteria must be combated, for instance, in tubercular conditions by the selenia. Unfortunately, Professor Klebs could not be persuaded to put his principles into practical application in other infectious diseases, as well as in tuberculosis, and soon the enthusiasm in support of his views subsided; the result was that his first scientific therapeutic publication soon was discontinued."

Schirmer bases his effects in Phylacogen therapy upon the views and teachings of Klebs and states that "The preparations of Dr. Schafer distinguish themselves advantageously in comparison with other bacterial preparations. First, because they can be used in many cases in daily practice, and second, because they do not carry into the body dead bacteria or foreign albumin." The dead bacterial cultures, which are so innocently given the name "vaccines," are, theoretically, most dangerous when employed in practice. Reference is made to the harmful influence in exposing the water containing dead bacteria in salvarsan injections. The author claims that "foreign albumins engender the well-known anaphylaxis, and an effort was therefore made in Germany to use for further diphtheria antitoxin injections sera drawn from the sheep."

To continue: "All of the above remarks do not apply to the preparation under consideration. Dr. A. F. Schafer calls Phylacogen the watery

*The Medical Fortnightly, May 10, 1913.

solution of the products of metabolism of pathogenic bacteria obtained from definite culture media."

Schirmer treated a series of 20 cases with the different Phylacogens, including Rheumatism, Gonorrhea and Mixed Infection. One case in particular of chronic rheumatism is described, occurring in a patient 78 years old, with swollen, painful and badly affected joints, in which acute symptoms rapidly disappeared under treatment with Rheumatism Phylacogen. The importance of instituting supplementary treatment in such cases is mentioned, for the reason that there frequently occur anatomical changes which cannot be removed by Rheumatism Phylacogen, and it is important for the good reputation of the remedy, as well as for that of the physician, to institute the necessary active and passive motion. The results were brilliant in acute and recurrent rheumatism. The swelling and pain in the affected joints decreased after a short time.

A second group included those of old infections continually showing new exacerbations, in which it was impossible to determine a specific organism. Five cases in this group were treated, all responding with satisfactory results as evidenced by decrease in swelling, relief from pain, reduction in temperature, etc.

The third group included cases of gonorrhea in which brilliant results were obtained in every instance, especially in the cases of old gonorrheal joint affections, which made rapid improvement.

THE USE OF RHEUMATISM PHYLACOGEN IN CHRONIC RHEUMATISM.*

By Edw. B. Richey, M. D., Louisville, Ky.

Three cases of chronic rheumatism are outlined in this paper, the first of which was that of a patient, 62 years of age, weighing 200 pounds, with a rheumatic history of eleven or twelve years' duration. For eighteen months the woman was entirely helpless, could not walk or comb her hair, and suffered pain night and day. This patient was temporarily relieved by three doses of Rheumatism Phylacogen, injected subcutaneously, and three given intravenously. Although there was considerable deformity and the patient walked on crutches she was able to comb her hair, turn over in bed, get up and down, but was very weak and the muscles were flabby. Six months later the patient had a slight return of pain in both ankles and one knee, and received, subcutaneously, one dose of 5 Cc. and three doses of 10 Cc. of Rheumatism Phylacogen, which relieved all traces of pain. She was using crutches owing to a fear of falling, but was able to walk around the house and out into the yard.

The second case was one of rheumatism of 15 years' standing. The condition had been diagnosed at various times as hip-joint disease, chronic

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Kentucky Medical Journal, November 15, 1912.

dislocation, fracture of the neck of the femur, rheumatism, and sciatica, and treatment had been prescribed at various times for these different conditions. A radiograph of the hip joint exhibited deposits of some kind about a quarter of an inch thick around the head of the femur, which explained fully the grinding or cringing sensation of which the patient complained. The urine was loaded with uric acid and other solids. She received doses of Mixed Infection Phylacogen of 2, 5 and 10 Cc., followed by six doses intravenously of 2, 5, 7½, 10, 10, and 10 Cc., respectively, after which she was free from pain. The patient returned to her home, 55 miles away, and was able to attend to the usual duties of the household, but after considerable exercise and vigorous use of the limbs they began to swell and show some signs of a return of the condition. She returned for treatment, three months later, when she received eight subcutaneous doses of 10 Cc. each, with prompt relief of pain and was able to again resume her household duties. She was last seen five weeks later, when there was no evidence of a return of the old symptoms.

Case 3 was that of a woman, 45 years of age, weighing 120 pounds, with a history of rheumatism for ten years, involving all the joints. She received six doses of Rheumatism Phylacogen, subcutaneously, the pain gradually disappearing after the third dose, and she was able to sleep soundly, something she had not done for months.

From a close observation of the results in this case, the author reaches the following conclusion: "I am convinced that the use of Rheumatism Phylacogen in chronic articular rheumatism is entirely justifiable, that it will in most cases relieve pain; that it will not reduce to any great degree any uric acid deposit or cure an ankylosis, but will cause the system, by ridding it of the infecting organisms, to cease the production of such etiologic agents and put it in condition to gradually rid itself of these complications. I have not used this remedy in acute articular rheumatism, but believe it to be more efficient than in such long standing and difficult cases as I here report." He further concludes that "credit must be given to the Phylacogen in the treatment of these severe cases for the relief of pain, even if no other good is accomplished, for thereby the patient is made comfortable and can enjoy some of life's happiness. I believe that any fair-minded man would sanction the use of the Phylacogen as a remedial agent in rheumatism could he but see the relief afforded his patient. Facts and experiences do not lie, and we must admit that Phylacogen in rheumatism is the most efficient remedy thus far placed in the hands of the profession."

REPORT OF CASES TREATED WITH PHYLACOGEN.*

By F. C. Smith, M. D., Keokuk, Ia.

The original report presented by Smith contains a brief history of five cases treated with Phylacogen with the following results:

Case 1. Acute muscular rheumatism; cured.
Case 2. Gonorrheal arthritis; cured.
Case 3. Hay fever; no benefit.
Case 4. Arthritis; no benefit.
Case 5. Gonorrheal orchitis; cured.

Supplementing these he reports fourteen additional cases, seven of which were orchitis and epididymitis, resulting as follows: Five cases cured, one case benefited, one case not benefited. Seven cases of rheumatism with results as follows: Four cases cured, one case benefited, two cases not benefited.

He sums up his experience in the following statement: "While my own personal experiences have not been very extensive, embracing so far 19 cases as reported, with 14 successful results and five failures to obtain benefit, the successes are sufficiently definite and striking to warrant the application of Phylacogen whenever indicated."

PHYLACOGENS; UNIQUE THERAPEUTIC RESULTS; CASE REPORTS.†

By B. F. Zimmerman, M. D., Louisville, Ky.

The importance of considering the possibility of a gonorrheal complication in arthritic conditions was amply verified in one of a series of cases reported by Zimmerman. The case presented marked symptoms of arthritis deformans, involving most of the joints of the upper and lower extremities, with more or less ankylosis and deformity. The patient, a woman, received a total of 72 Cc. of Rheumatism Phylacogen, with little or no improvement. In the meantime it was discovered that her husband had had gonorrhea when a young man, and this, coupled with a history of sterility and menstrual disturbances, suggested treatment with Gonorrhea Phylacogen. An initial dose of 2 Cc. was given, intravenously, followed in 35 minutes by a chill which lasted for two hours, with other symptoms of a typical reaction. Marked relief was noted following this first dose, and daily increasing doses were given with equally prompt effect, and the patient was entirely relieved of pain at the end of the fourth day. Marked improvement in all the joints was noted. The patient was symptomatically relieved, but not cured, and remained in this condition until the approach of the next menstrual period, when the symptoms began to reappear. She received an additional quantity of 60 Cc.

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*Buffalo Medical Journal, February, 1913.
†The Lancet-Clinic, February 15, 1913.

of Gonorrhea Phylacogen, given at proper intervals, intravenously, and following a second menstrual period received a total of 100 Cc., after which there was no recurrence of the acute infection and the general condition of the patient was much improved.

The second case presented a history of rheumatism of one month's duration, joint symptoms making their appearance during menstruation. A definite gonorrheal history of long standing was obtained from the husband, and the patient was at once placed on treatment with Gonorrhea Phylacogen, beginning with 2 Cc., subcutaneously, and gradually increasing to 10 Cc., daily. A total of ten doses were given with the usual reactions, the patient improving from the beginning and she was discharged as cured fifteen days after the initial dose.

Case 3 presented mitral valvular disease with a pronounced systolic murmur, in addition to a rheumatic condition of seven years' standing. On account of the heart lesion the initial dose of Rheumatism Phylacogen was fixed at one Cc., subcutaneously, and was followed by a typical reaction. The dose was gradually increased to 8 Cc. Considerable irregular heart action was noticed after the tenth dose, when treatment was suspended for five days, after which it was resumed until a total of 18 doses had been given. The patient was able to go to the physician's office one month after the initial dose, and there has been no recurrence of any of the symptoms. The author closes with the following conclusions: "It is too early to state definitely what the ultimate results of this method of treatment will be. I think it depends upon the accurate diagnosis of our cases and the administration of Phylacogen until the systemic reaction no longer appears. In cases in which the subcutaneous administration fails to give results, the intravenous method should be employed."

CLINICAL REPORTS ON RHEUMATISM PHYLACOGEN.*

By E. J. Fleetwood, M. D., Wakefield, Nebraska.

The author reports a case of a second attack of acute inflammatory rheumatism involving practically every joint in the body. The temperature was 103°, pulse 100, respiration 22, and the man was unable to move in bed. Aspirin had been administered in ten-grain doses, every three hours, with but little if any effect on the pain. On the first and second days 5-Cc. doses of Rheumatism Phylacogen were administered, and during the following five days he received 10-Cc. doses. He began to improve after the second day, on the fifth day was able to walk, and on the seventh day was entirely free from pain. Some stiffness in the joints remained as a result of the inflammatory condition and the patient began treatment with an osteopath. At the end of the fifth dose the pain and swelling had reappeared in all the joints; the patient was compelled to

*Western Medical Review, January, 1913.

return to bed and was given daily doses of 10 Cc. of Rheumatism Phylacogen until 30 Cc. had been administered. At the end of the fourth day he was able to return to the city and follow his usual vocation, with no further relapse.

EXPERIENCES WITH PHYLACOGEN.*

By Elmer Lee Henderson, M. D., Louisville, Ky.

In treating in a general way the subject of Phylacogen, the author points out the importance of exercising great care in making a diagnosis, upon which rests largely the success of Phylacogen therapy, and points to the following illustration:

"A mistake in diagnosis will result in disappointment to both physician and patient, as in a case that I observed recently. The patient was treated with Rheumatism Phylacogen without results and the physician in charge of the case accidentally ran across a condition which caused him to immediately correct his diagnosis and use Gonorrhea Phylacogen, whereupon the patient began to show signs of improvement at once."

The writer further suggests the importance of making a thorough investigation of the condition of the kidneys, arteries and heart, as it is not wise to administer Phylacogen to a patient suffering from nephritis, arteriosclerosis, or far-advanced valvular heart lesions. He recommends that invariably the first dose be administered subcutaneously and, if the case presents no contraindications, that subsequent doses be given intravenously. Although the reactions following intravenous injections are more prompt and pronounced, they do not last as long as those resulting from the subcutaneous method, and local reactions are avoided. From all indications, the result from the intravenous method is more prompt and permanent.

Histories of three cases are reported to illustrate very ordinary conditions wherein Phylacogens are indicated and in which prompt results may be anticipated. One of these was a case of abscess of a left cervical gland which had been opened. Erysipelas developed on the second day following the operation. The entire face was swollen and inflamed; both eyes were closed, and pus was discharging freely. On the fourth day two doses of Phylacogen (2 and 4 Cc. respectively) were administered subcutaneously, followed on the fifth day with two doses of 6 and 8 Cc., respectively. There was a marked reduction in temperature, pulse-rate and respirations. On the sixth day the temperature, pulse and respiration were normal, the condition of the face was much improved and both eyes open, consequently no Phylacogen was given. On the seventh day the last dose, ten Cc., was administered. The patient made a complete and most satisfactory recovery.

The author sums up his experience in the following statement:

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*Louisville Monthly Journal of Medicine and Surgery, February, 1913.

"I may say that the Phylacogens, from my experience, have a definite value in a number of diseases. I have never had any unsatisfactory results and, judging from the reports from all parts of the country, I certainly feel justified in recommending that they be used."

CLINICAL EXPERIENCE WITH PHYLACOGENS.*

By S. Pirosh, M. D., Baltimore, Md.

The author cites the case of a patient who presented a distinct history of a general rheumatic infection involving many of the joints of the upper and lower extremities, with pain and swelling. The patient had received treatment in a hospital for more than three months with very slight relief, after which she received a total of six doses of Rheumatism Phylacogen, subcutaneously, ranging from 5 to 10 Cc., with prompt and complete relief. Four months after discontinuing the treatment, the patient was well and had gained 21 pounds in weight.

He says: "Judging from my experience with Phylacogens these valuable products seem entirely worthy of further clinical trial, with the expectation of a greater percentage of recoveries than we can secure from the usual methods. As before mentioned, care should be used in the choice of suitable cases for Phylacogen treatment."

THE TREATMENT OF INFECTION.†

By E. H. Troy, M. D., McAlester, Oklahoma.

In support of the Phylacogen therapy, Troy recites his experience in the treatment of ten cases of well developed typhoid fever, two cases of typhoid neuroses, twenty-four cases of rheumatism, three cases of otitis media, three cases of infected gall bladder, and one case of cerebrospinal meningitis. He has under treatment twenty-eight cases of tuberculosis which seem to be progressing favorably. In addition, he has treated various infections, including sycosis, acne, carbuncle, erysipelas—all with good results. The author lays particular stress upon the importance of making a specific diagnosis, saying: "They do not always ascertain positively the predominant infection and seldom determine the mixed infection. If you are treating infectious diseases without making a diagnosis, do not be disappointed if you do not get results with Phylacogen."

In justifying the administration of the Mixed Infection Phylacogen, the following is the writer's view:

"If we make a bacteriological study of acute infections, such as acne, carbuncle, furuncle, endometritis, endocarditis, osteomyelitis, or the

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Charlotte Medical Journal, March, 1913.

†*International Journal of Surgery*, April, 1913.

various forms of pyemia and septicemia, we will find the staphylococcus and streptococcus present. If we study the respiratory tract we will find the bacillus sepsis, the bacillus of Friedlander, the bacillus influenzæ, the micrococcus catarrhalis, also the staphylococcus and streptococcus; and the preponderance of one kind or another will give us pneumonia, influenza, acute catarrh, bronchitis, etc.

"If we study the diseases of the alimentary canal we will find that the causative organisms belong to the colon, typhoid or the diphtheria group. In making an early examination of the infected appendix, gall-bladder or liver, we will often find a pure culture of the colon bacillus. In studying tuberculosis we will often find many of the foregoing associated with the tubercle bacillus. Thus we see that our bodies, like the forests of Brazil, are crowded with various forms of life and much of our vital energy is consumed in contending with these infections. Also every bacteriologist knows that when working with an attenuated culture, if another form be associated with it its virulence is thereby increased."

A MODIFIED VACINE THERAPY BASED UPON THE THEORY OF MULTIPLE INFECTIONS AND QUANTITATIVE REACTIONS.*

By A. F. Schafer, M. D., Bakersfield, Cal.

The application of the modified vaccine treatment, as described in the present brief article, which has been preceded by three unpublished papers, one read before the Kern County Medical Society in September, 1909, another before the San Joaquin Medical Society at Fresno, in October, 1910, and the third at the meeting of the San Francisco Medical Society, January 14, 1911, is based upon repeated observations that the growth of invading microörganisms can be arrested and their pathological effect neutralized by the therapeutic use of the products derived from their development in artificial culture media.

Preparation of Vaccine.—These vaccines are neither "bacterial vaccines" nor "sera" as ordinarily understood, but are solutions in sterile water (to which approximately 0.5 per cent phenol has been added) of the soluble substances generated by the organisms when grown in suitable culture media. The product is sterile and contains neither living nor dead bacteria, all organisms having been removed.

The "mixed-infection vaccine" which is used in the treatment of infections of any character whatever (except when the diagnosis has been clearly established and the predominating causative organism is known) is made from a large variety of pathogenic bacteria, such as strains of the staphylococcus pyogenes, streptococcus pyogenes, bacillus pyocyaneus, diplococcus pneumoniæ, bacillus typhosus, B. coli communis, B. dysen-

Therapeutic Gazette, April 15, 1911.

teriæ, etc. This is a polyvalent preparation, since the organisms are not confined to any one strain of a given species. In order that suitable cultures may constantly be at hand for the preparation of the vaccines, they are made daily from the sputa of different patients suffering from pneumonia and pulmonary tuberculosis. Cultures are also obtained from the throats of those infected with measles, scarlet fever, whooping-cough, from infected wounds, from acute or chronic abscesses, and from the urine of subjects suffering from acute or chronic diseases.

As a result of practical experience the author believes that the bacteria responsible for the disability of the host usually outgrow the contaminating organisms and frequently inhibit the development of the latter. The mixed infection vaccine, therefore, contains the metabolic substances developed from the bacteria which are derived from different sources and which represent the causative factors of a variety of pathological conditions. The bacterial content of the original preparation before filtration and dilution is approximately equal for the various organisms contained in it.

Acute Articular Rheumatism.

A culture was taken from the blood of a patient suffering from a severe type of the disease and a vaccine prepared from this culture. This was incorporated with the usual "mixed-infection vaccine." The amount injected was 10 Cc.

In one case of subacute articular rheumatism the patient had used crutches for three months and had never been free from pain during that time. He was inoculated by Dr. T. M. McNamara, of Bakersfield, at 5 p. m., and at 11 a. m., the next day, seemed entirely relieved from the symptoms. Another patient presenting a case of like nature, having been confined to bed for nine weeks, entirely recovered within twenty-four hours.

PHYLACOGEN.*

By L. Daily, M.D., Houston, Tex.

Case 1.—Dr. J. Clark, San Jose, California; rheumatism, hospital practice. Patient, J. McG., aged 43, male, single, Scotch, laborer. Habits: Drinks whiskey and beer moderately; also coffee and tea; appetite good. Family history negative. Previous diseases, measles and whooping-cough, when a child.

Present trouble began about twelve years ago. Patient says he was exposed in the damp and cold weather driving a beer wagon, and in the winter-time he became paralyzed; could not move his arms and legs. He noticed at that time that one knee and also the elbow and wrist were swollen. At first, the upper extremities recovered and then the lower, and he was perfectly well for twelve years, until last September, when he first experienced shooting pains in a phalangeal joint of the right hand. Soon afterward the joint swelled, and the other hand became involved. Then the disease spread to points above the elbows and shoulders; it changed about, disappeared in one

**Medical Bulletin of Harris Co. Medical Society,* Houston, March, 1912.

joint to reappear in another. In this last attack the lower extremities were not involved. Patient was admitted to the hospital December 20.

Diagnosis: Chronic arthritis, with acute exacerbation.

The man was put on salicylates, and was sweated; local applications were made to the joints, dry heat, etc. He improved some but was not cured; joints remained a little swollen and pain in the left shoulder was marked.

January 25th, 1911, at 8 p. m., 15 Cc. of Mixed Infection Phylacogen (Schafer) was given, intravenously. Within twenty minutes the patient had chills which lasted one hour, also felt nauseated and vomited; next morning, at 9 a. m., a similar dose was repeated and this time he had a very severe chill, his face becoming cyanosed and anxious and the patient considerably frightened. He suffered severe pain in the affected joints, following the injections. January 27, the dose was decreased to 10 Cc. At this writing patient had had eight injections and is practically cured.

Case 2.—Dr. J. Clark, San Jose, California; rheumatism, hospital practice. Patient, J. H., aged 54, male, married, Irish, laborer. Habits good. Family history negative. Previous diseases, measles and whooping-cough in childhood, chills and fever twelve years ago. The rheumatic trouble began about ten years ago when the patient had an attack of acute arthritis; first the elbow of the right arm became swollen, this disappeared in two weeks; then the shoulder and hip on the same side. The pain in the hip lasted eight months. The next attack came in July, 1910; first in the right shoulder, next in the left shoulder, and then in the left hip. The rheumatic condition in these joints continued until the present time. The patient said that during the whole period the pains in the right shoulder were so severe he could not raise his right arm, but used his left hand with which to raise it. About twenty days ago he developed mumps and also suffered from orchitis; both these swellings were subsiding when he was admitted to the hospital on the 2d of February. His temperature ranged between 100° F. and 101.8° F.

Fifteen Cc. of Mixed Infection Phylacogen (Schafer) was given February 4. The patient had a violent chill and the tehperature went up to 104° F., but gradually came down to the normal on the next day. It was thought wise to discontinue the injections as the pulse was very weak and he showed symptoms of myocarditis. On the 6th the cardiac condition was much improved and the injections were resumed. Ten Cc. was given, daily, after the second injection. He claimed to experience marked improvement, the pains gradually disappearing from the affected joints. So far he has had six injections (March 8); the parotitis and the rheumatism have entirely disappeared. He can move his arms as well as any healthy person and says he never felt better in his life.

Case 3.—Dr. J. Clark, San Jose, California, March 7, 1911: rheumatism, hospital practice. Patient, W. H., aged 65, male, married, Swiss, watchmaker. Habits good; drinks whiskey and beer moderately. Family history negative. Previous diseases, measles, scarlet fever when a child, malaria fifteen years ago. Personal history: Thirty-two years ago he had his first attack of rheumatism in the left shoulder. This disappeared in three weeks. Three years ago he had another attack in the same shoulder, which lasted a few weeks and got better. The present attack dates from two months ago. Patient says that on a rainy day he stepped off a sidewalk into a pool of water and got wet to his waist. Had a chill, and on the next day his joints began to pain, first the right knee, then the left, then the joints of both feet, then the wrist of the left hand and elbow, and lastly the old shoulder. He entered the hospital on February 25th, was hardly able to walk then; the wrist of the left hand was the only one that was swollen. February 26th he received an intravenous injection of 10 Cc. Mixed Infection Phylacogen. Had a marked reaction and vomited and in a couple of hours his bowels moved severely about four times. In all he has had seven injections of 10 Cc., one each

day. There was marked improvement from the first dose and after the fifth he was practically cured; all the pains having disappeared and all the joints were movable without pain. He is ready to leave the hospital.

An interesting feature of this case is that the acne rosacea of the nose, cheeks and forehead, with which the patient has been afflicted for years has been notably improved; the eruption on the cheeks having almost entirely disappeared.

Case 4.—Dr. J. Clark, San Jose, California, February 25, 1911; rheumatism, hospital practice. Patient, J. N., aged 22, single, Mexican, laborer, was admitted to the hospital February 20, 1911. He could not walk; suffered agonizing pain in his right hip joint, also in the left knee, it being swollen, red, and hot; the ankle joint of the left side and the other joints of the foot began to pain the same day. Patient said that he had never had rheumatism before and that this attack began a few days before he entered the hospital. His pains were so severe that he was given morphine. February 21st, at 11 a. m., patient received an intravenous injection of 15 Cc. Mixed Infection Phylacogen; had a severe chill, and following this suffered agonizing pains in the affected joints, so that he had to be given one-quarter grain morphine to control the pains. On the next morning patient felt much better. The pains had nearly all disappeared. He was able to move his legs without causing pain. On the next day the same dose was repeated. Then we decreased the dose to 10 Cc. on the days following. In all he received four injections. March 1 he left the hospital entirely cured.

Case 5.—Dr. J. Clark, San Jose, California; rheumatism, hospital practice. Patient, J. F., aged 42, male, single, American, laborer. Habits good. Family history negative. Previous disease, diphtheria when a child. Previous trouble: About five years ago he suffered his first attack of rheumatism; it appeared in his left shoulder, then the rest of the joints became involved, successively. During these five years he had never been free from pain in some joint. He was admitted to the hospital February 2. The next day he received 15 Cc. of Mixed Infection Phylacogen, intravenously, and on the three days following he received each day 10 Cc. intravenously, of the same vaccine. After the third injection he claimed his pains were entirely gone, and following the fourth and last injection he was considered so much improved that he was declared well and no further vaccine was given.

RESULTS OBTAINED WITH A MODIFIED VACCINE.*

By Louis D. Green, M.D., San Francisco.

In the past year the writer has treated ninety cases by the above method, the number of treatments to each patient varying from one to forty, or more.

A number of cases in which a fatal prognosis had been made were treated with the vaccine as a last resort. The greater number of these patients died, but a few of them recovered and apparently only as a direct result of the vaccine. While in terminal cases good results are not to be expected, the patient should be given the benefit of the doubt and the vaccine administered, but in small doses. In this way it has been possible to bring about a complete recovery in cases that were considered hopeless.

California State Journal of Medicine, April, 1912, p. 160.

Cases treated.	No.	Rec'd.	Greatly Impr.	Slightly Impr.	No Bnft.	Died.
Acute articular rheumatism	3	2	1	..	..	..
Chronic articular rheumatism	3	2	..	..	1	..
Arthritis deformans	2	..	..	..	2	..
Tubercular arthritis	3	1	1	1	..	..
Tubercular synovitis	1	..	1	..	..	..
Sciatica	2	..	..	1	1	..

In cases of acute articular rheumatism in which complete recovery took place, the pain in the affected joints disappeared soon after the reaction, to reappear within six to eight hours but with less intensity. It became less after each injection, until it disappeared entirely. The convalescence was shorter than usual. No internal medication was given.

In a case of acute articular rheumatism that was greatly improved, the convalescence was not shortened, although the pain and swelling in the affected joints were markedly reduced after each injection and the patient was finally discharged cured.

In one of eleven fatal cases a tentative diagnosis of septic endocarditis had been made, as the symptoms pointed toward that disease and the vaccine was administered for that reason. Autopsy proved the disease to be sarcoma of the liver and intestines. The patient died about one week after the last dose of vaccine had been given.

It was found that the following procedure proved the most efficacious: The patient should abstain from food for about three hours previous to the injection, as the reaction may cause vomiting. He should be in bed in a recumbent position. The veins at the elbow are usually chosen, the skin having been previously sterilized.

The vaccine should be injected slowly, and it is important that none of it enter the tissue surrounding the vein as it causes a very painful local inflammatory reaction which persists for several days.

The patient should remain in bed for two or three hours after the chill has subsided, as collapse is apt to follow getting up too soon.

In the aged, or when the patient is weak, or his condition is bad, stimulate at the time of injection. It has been the writer's custom to use 1/30 grain of strychnine, hypodermically, as a routine measure in such cases. Other stimulants can be given as required.

For the headache, pain in the lumbar region or at the seat of disease, when very severe, morphine may be necessary. On account of the profuse perspiration, cool normal saline solution, per rectum, by a drop method, has been found very beneficial.

Doses.

As at present prepared, the vaccines cause a much more powerful reaction than that which Schafer originally prepared, and the writer's usual procedure in the average case is to give as the initial dose 0.5 Cc. diluted with 2 or 3 Cc. of sterile distilled water.

These doses should be rapidly increased as tolerance is established.

This will depend largely upon the severity of the reaction that follows. When this is mild and tolerance of the vaccine is rapidly obtained, the dose should be correspondingly larger, remembering not to give a dose so large as to exceed the bounds of safety.

The vaccine should be administered daily for the first six or seven days, then every other day for about one week, then twice and, finally, once a week. This will depend largely on the disease treated, as well as on the rapidity with which convalescence takes place. It is important not to stop the injections too soon, as a relapse may occur if this be done.

It is very important that the injection should not be repeated until the symptoms of the previous reaction have subsided. Dietetic, climatic, hygienic or any other form of treatment that may aid the patient in fighting the disease should be instituted.

Conclusions.

In conclusion we wish to emphasize the following points: The dose should be small enough to cause a mild chill. Severe reactions are to be avoided. Give the vaccine intravenously, if possible. Watch the reaction to ascertain the proper procedure to follow. Stimulate at the time of injection, if the patient's condition requires it. Do not repeat the injection until the symptoms of the previous reaction have subsided. Other recognized methods of treatment are not to be discarded.

SCHAFER VACCINE TREATMENT FOR RHEUMATISM.*

By G. C. Crandall, M. D., St. Louis.

In the following paper I report the clinical results which I have observed in the use of Schafer's rheumatism vaccine in a series of twenty non-selected rheumatic patients in the St. Louis City Hospital.

The phylacogens may be administered subcutaneously or intravenously, with the usual aseptic precautions. About one minute for each cubic centimeter should be occupied for introducing it by the intravenous method.

In the treatment of this series of twenty cases with Phylacogen I have used no other rheumatic medication whatever, the only other medicine being a dose of magnesium sulphate as might be necessary to insure daily action of the bowels. The diet consisted of the usual diet for rheumatism.

The following case histories are typical of the cases as they occurred varying in degree from mild to severe type. A few had organic heart disease from former attacks, one case of multiple atrophic arthritis of many years' standing, one case of arthritis deformans. Some of the cases showed acute or chronic tonsillitis associated with rheumatic symptoms.

**Journal of the Missouri State Medical Association*, June, 1912, p. 492.

A number of cases had had former attacks and a few were recently recurrent cases which had not done well on full doses of salicylates.

Case 1.—A. C., male, laborer, single, aged 38, colored. Family history negative. Had syphilis and gonorrhea. Chest examination showed a marked mitral lesion, regurgitant and fairly well compensated, which he said had existed for some years. The present attack of rheumatism began seven weeks ago, for which he had been treated with full doses of salicylates, as constantly as his stomach would tolerate, with only partial relief. No salicylate, however, had been given for the three days before the Phylacogen was begun. At the time of the first injection many of his joints showed typical evidence of severe rheumatism, ankles, knees, elbows and wrists were very swollen and painful, temperature 102° to 103° F. He was unable to feed himself. The first dose of four Cc., which was rather large for an initial intravenous dose, was followed by a severe rigor and a temperature of 105.4° F., which receded in a few hours with marked decrease in symptoms. The following day he was able to feed himself, and after the third injection complained of no pain; after the sixth injection he was up and about the ward for a few days until dismissed from the hospital without rheumatic symptoms. Very extensive herpes labialis followed the early injections.

Case 2.—G. D., male, widower, aged 53, white, not able to work. Family history negative, except that the father suffered with rheumatism and an uncle had arthritis deformans. Had usual diseases of childhood and as a boy had recurrent attacks of rheumatism, often lasting for months. Physical examination showed a corneal ulcer which had existed for three months; no heart symptoms; abdomen negative; reflexes irregular, due no doubt to marked atrophy of the muscles. For 20 years he has had a developing arthritis deformans, showing now considerable fixation of the elbows and knees, and claw-shaped hands, with more or less constant pain in different joints, being entirely unable to work for three years. Has an irregular temperature ranging from normal to 100° F. Patient received a series of five injections during a week, with progressive improvement following each injection. He now states that he is more free from pain than he has been for several years for such a period of time, and can move with greater ease the joints which are not fixed. Patient is still under treatment. He developed quite marked herpes labialis following early injection.

Case 3.—W. E., male, married, aged 28, white, machinist. Family history negative. At 11 years of age had an attack of rheumatism which lasted three weeks, again at 15 which lasted five weeks, at 19 an attack lasting a year, at 21 another attack lasting seven months, and at 24 was again incapacitated for another year with his fifth attack. No history of any venereal disease. Married at 25 and has two healthy children. Present attack began about two weeks before he came to the hospital with the usual symptoms of redness, swelling and pain in the joints, also pain in back of neck, temperature 100° to 102° F. Had taken medicine without relief until the time of admission to hospital. Physical findings were negative except for slight systolic murmur of apex. He received 5 Cc. initial dose subcutaneously, producing a rigor accompanied by vomiting, temperature of 105.6° F., followed by considerable relief. Three other subcutaneous doses as high as ten Cc. were given with considerable relief, then he received intravenous injections with more marked relief, and after five of these was apparently well and was discharged.

Case 4.—J. L., male, single, aged 22, white, laborer. Family history negative. Had two attacks of rheumatism seven years ago in ankles, but not confined to bed at these times. Tonsils somewhat swollen and sensitive. No definite heart findings. Hands and feet swollen, red and tender. Patient suffered a great deal of pain and required opiates; temperature 100° to 102° F.

Received a dose of Phylacogen subcutaneously with a reaction of 103.8° F., much improved. Later on he received five doses intravenously and left the hospital apparently well.

Case 5.—L. C., male, widower, aged 38, white, agent. Family history negative. Gonorrhea five years ago, no lues, no heart lesion detected. Has had some pain in the shoulders occasionally since a typhoid attack seventeen years ago, and at various times pains in other joints so as to incapacitate him at various times, although not in bed with other attacks. Wrists and hands showed typical symptoms; temperature 100° to 101° F. Received several injections intravenously; after the first two doses of two and one Cc. respectively, with a 103° to 104° F. temperature reaction, he developed some temporary dyspnea early during the reaction; subsequent injections of more than 2 Cc. with moderate reactions resulted in complete relief of all symptoms, and none of the reactions after the first two was accompanied by disturbance of breathing. Herpes followed the early injections. Patient discharged several days after treatment, well.

Case 6.—C. C., male, single, 26, white, laborer. Family history negative. Rheumatism three years ago, had three attacks in the past year. always occurring with tonsillitis. Gonorrhea three years ago, denies lues. Physical examination shows pharynx injected and tonsils enlarged, no heart findings. Swelling and tenderness in shoulders, elbows, hands, knees and feet; complains of suffering considerable pain. Temperature 99° to 101° F. Received Phylacogen intravenously, seven doses, respectively one-half, one, two, three, four, five, and five Cc. each; much relieved after first doses and left the hospital well. Herpes followed early injections.

Case 7.—C. C., female, single. Family history negative except that an aunt died of rheumatism. Symptoms of rheumatism developed seventeen years ago, swelling and pain in left little finger for two years extending to the middle finger and thumb and to the wrist later, the right hand was involved with extension of the wrist; this gradual progression continued until three years ago, when the left knee became acutely involved, and a year later the right knee and both ankles were gradually involved. During the past year patient was not without pain, she states, at any time. Complained of great deal of pain along the course of sciatic nerve, and of much pain when moving the joints; the fingers were spindle-shaped and she was unable to feed or care for herself when she came to the hospital Patient was somewhat anemic, but no definite findings of moment apart from the rheumatism were found, temperature ranging from normal to 101° F. before treatment. She received seven doses of Phylacogen intravenously, beginning with 2 Cc. There was much relief after the first dose and within a few days she was able to feed and care for herself. There was complete disappearance of pain and the joints of the hands and fingers particularly showed marked decrease in size and increase in mobility. In this case of chronic atrophic arthritis the *x*-ray showed no marked destructive changes of the joint surfaces. Herpes followed early injections. After a few days she felt a little return of pain in one ankle and one wrist, and will receive another series of intravenous injections, with occasional doses thereafter for a time.

Case 8.—L. O., male, single, aged 22, white, laborer. Family history negative. Rheumatism at 14 with involvement of knees and ankles. Complete recovery after three months. Has had sore throat occasionally. Gives history of gonorrhea and chancre in July, 1911. Has received deep injections of mercury. Pharynx injected, cervical glands palpable, heart very rapid and irregular, mitral regurgitant murmur, left heart large, had some precordial pain at times previous to last attack of rheumatism. Shoulders painful, knees and ankles red, swollen and tender; temperature 99° to 102° F; suffered with considerable joint pain before injections. He received Phylacogen by the intravenous method, seven doses, with quite marked reac-

tions. Complete disappearance of rheumatic symptoms. Heart remained rapid and he felt the precordial pain occasionally as before. When discharged was free from active rheumatic symptoms.

Case 9.—F. B., male, single, aged 55, white, cooper. Family history negative. Children's diseases with a nephritis complicating scarlet fever which has recurred at times; some albumin and a few casts found. Rheumatism 15 years ago, at which time numerous joints were involved, lasting five weeks; another attack seven years ago lasting three months. Gonorrhea at twelve and three years ago; chancre a few months ago. Had sore throat three weeks ago, followed by the present attack of rheumatism. Left hand, knees and ankles swollen and tender; temperature 99° to 101° F. Treatment was administered by the intravenous method, all symptoms disappearing after five injections. Early injection followed by herpes. Patient was discharged well.

Case 10.—H. McK., male, single, aged 39, white, laborer. Family history negative. Has had syphilis, and several previous attacks of rheumatism. Physical examination negative. Large, well-nourished man. The present attack of rheumatism began a few days ago, his ankles, knees and wrists were swollen and painful. The left wrist was so much involved that he was unable to use it. Temperature 101° to 102° F. No treatment has been given. Five Cc. Phylacogen subcutaneously was given, followed by marked chill, fever of 104°, and a profuse sweat. After the reaction he was much relieved of the pain and received seven more 10-Cc. injections subcutaneously, which cleared up his symptoms except a little pain in the insteps which he said he had had independently of the rheumatism and which was apparently due to flatfoot, as the arches were somewhat broken down. Following the injections he noticed a numbness of his limbs which lasted for a week or more. After an elapse of ten days without treatment there were no further joint symptoms. Patient discharged well.

My experience with Phylacogen, or Schafer's vaccine, indicates that it rapidly relieves many rheumatic conditions, especially in the acute and subacute types, and in some of the chronic types which show little or no destruction of joint surfaces; also valuable in relieving pain and making more comfortable the more severe types of arthritis, even arthritis deformans. From my observations it is still too early to draw conclusions as to the permanency of the results. Schafer, however, affirms the complete and protracted relief of most cases if the remedy is given thoroughly, especially with the acute and recurrent types. In none of my cases did I observe any heart lesions developing incident to the immediate attack, and the few which showed heart lesions from rheumatism or other causes were not disturbed by the treatment. With uncompensated lesions, however, it may be necessary to withhold the treatment for a time or give it very carefully. Two patients showed some temporary dyspnea, during the early part of the reaction, due possibly to too large an initial dose, too rapid administration or an idiosyncrasy for the remedy. This symptom with one patient followed his first two injections, but not in the subsequent injections, which gave him complete relief from the rheumatic symptoms; and with the other so slight as to be of little moment. Examination of the urine showed no disturbance, except in one case which had marked acute nephritis, and the increase of the kidney disturbance in this case was no more than might have occurred from the high temperature.

His rheumatic symptoms were completely relieved after two doses, and after a rest of a few days, with attention to the kidneys, more was given to still further protect his heart and kidneys from rheumatic irritation.

No delirium has been observed with the high temperatures, which have sometimes reached 105° and in one case 106.8°, usually being higher after the first injection than after subsequent ones, even though the dose is gradually increased. The early reactions appear to be an index to the degree and rapidity of recovery, a good reaction being favorable. Herpes labialis was observed in several cases. Patients receiving the subcutaneous injections complained more of the treatment than those who received the intravenous injections, which I believe is due to the local reactions. It appears advisable to tell the patient when beginning injections that they may have a chill and fever following injections, otherwise the reaction may be somewhat disturbing to them. For the comfort of the patient hot blankets were used during the chilling stage, and ice-bag with cold water to drink during the hot stage. All injections, subcutaneous and intravenous, were given with the patients in bed, where they were kept until the reactions subsided. As the joints improved the patients were allowed to be up some of the time between the injections.

I have not observed any special contraindications to the use of the remedy; I believe it is important to give sufficient doses to prevent relapse. I observed, after two or three doses, in a few cases, apparent cure, with, however, some tendency to soreness of joints if injections were suspended for two or three days; and later continuing injections to a total of five to seven, or until the reactions were slight or ceased, no further trouble appeared for several days until the patients were discharged.

The few cases which showed active tonsillitis in conjunction with rheumatism were promptly relieved of the throat symptom.

In conclusion, I may say that Schafer's vaccine, or Phylacogen for rheumatism, appears from my experience so far to be of definite value. It cures so promptly most acute and subacute cases that I think it will safeguard the heart from the unpleasant acute and chronic complications; it relieves many of the severe chronic rheumatic affections and may cure the less destructive chronic conditions.

TREATMENT OF RHEUMATISM WITH RHEUMATISM PHYLACOGEN.*

By Edward B. Richey, M.D., Louisville, Ky.

That which physicians and patients alike are looking for in the application of the science of medicine to the relief from disease is results, and such results as satisfy the patient to such an extent that they continue to tell their friends that the treatment was a blessing and a relief to them after a period of four months, is just the kind of results we are looking for.

Charlotte Medical Journal, July, 1912, p. 12.

I agree with Dr. Schafer in his opinion that most diseases are what they are to the human organism because there is present a mixed infection.

I believe from my use of Schafer's mixed product, which I have given thorough trial in a few cases of tuberculosis, that ridding the body of the microörganisms of mixed infection makes tuberculosis a comparatively simple thing to treat successfully if taken early in the disease.

All these cases in which I used the mixed product were advanced cases, but in all of them the sputum became free from all bacteria except tubercle bacillus upon its administration. Other symptoms which could be attributed to the pus-producing organisms cleared up and the temperature was more easily controlled.

As I have good reason to believe Parke, Davis & Co. have developed Phylacogen with the same care and exceeding precaution they exercise in placing a product upon the market in all instances, we can hope for results.

I am reporting the following case, which I have now had under observation since February 1st, 1912, until this writing, May 14, 1912:

Patient, Mrs. H., aged 65, white, married, housewife.

Diagnosis: Chronic articular rheumatism.

History: Mother of eleven children, seven of whom are living and in good health. Husband, aged 70, in good health. Father died aged 64, cancer of stomach. Mother died aged 30, childbirth. One brother living in good health, three brothers died in infancy. No sisters. Usual diseases of childhood, no history of rheumatism in family.

Subjective: Thirteen years ago feet and ankles pained when first getting up in the morning. Went to "Springs" that summer, but received no benefit. One year later, knees, hands, fingers and elbows became involved, necessitating the use of crutches at times. Eight years ago had to resort to crutches all the time and then had great difficulty in getting about and suffered great pain, unable to turn in bed without assistance.

Objective: Slight seal-fin deformity of both hands, both knees and both elbows slightly ankylosed; pain in all these joints, also in hips and shoulders; cannot turn in bed without assistance. Has been unable to walk, even with assistance of crutches, for past three months. Suffers with insomnia on account of pain, appetite poor, vertigo, practically bedridden. Is very fat and heavy.

Treatment and Results: Spent one winter in the South, has taken all the rheumatic remedies, osteopathy, hot baths, constitutional and local measures, with only very temporary relief and a return of former pains much exaggerated.

One case does not prove conclusively the efficiency of any remedy whether administered within the blood current (the method *par excellence* in my way of thinking) or given per mouth. But to me the results in this case have been very satisfactory, relieving all pain permanently, giving the patient the use of her limbs in walking whereas she was bedfast, giving her health, relieving to a marked degree the stiffness and

enlargement of joints, getting rid of all swelling, establishing a normal action of all excretory and secretory organs and making the patient comfortable and happy. I make these observations after having kept the patient under observation for the past four months. I now have other cases in process of treatment in which so far Phylacogen is proving equally efficient.

I do believe that it is absolutely necessary for the physician using Phylacogen to be very sure of his diagnosis.

THREE CASES OF RHEUMATISM SUCCESSFULLY TREATED WITH A NEW BACTERIAL DERIVATIVE.*

By W. H. Foreman, A.M., M.D., Indianapolis, Ind.
Professor of Therapeutics, Indiana University School of Medicine.

It is now generally accepted that all acute, subacute, and chronic rheumatic conditions are of a definite infectious origin. The primary causative factor, as claimed by Poynton and Paine, is a streptococcus which has been isolated and named "Streptococcus Rheumaticus" (see *London Lancet,* Sept. 22, 1900, p. 861; also June 4, 1912).

In his original work done at Bakersfield, Cal., Dr. A. F. Schafer claims to have recovered the streptococcus rheumaticus from a large number of cases of rheumatism (presenting a variety of forms). He also observed that these cases were either primarily or secondarily multiple infections. It was upon this theory that Dr. Schafer based his conclusions when producing his Rheumatism Phylacogen (which is a combination of the metabolic products of streptococcus rheumaticus and an equal part of the mixture of the metabolic derivatives of common pathogenic bacteria) for the treatment of rheumatism.

While my experience in the treatment of rheumatism with the Phylacogens has been limited, my results have been so uniformly favorable that I feel justified in giving the Phylacogens full credit for the results obtained.

The following histories are of cases presenting different types of the disease at different ages which were each treated with Rheumatism Phylacogen only, and were followed by uniformly good results:

Case 1.—Mr. K., aged 19.

History: Acute attack of rheumatism five years ago confined the patient to his bed for about nine weeks. Tenderness, soreness, and stiffness of joints, with more or less pain all the time. This attack resulted in a mitral regurgitation.

Present Attack: April 9, 1912, the patient suffered a second attack of arthritis, similar to the first one.

Treatment: April 9, 5 Cc. Rheumatism Phylacogen was administered subcutaneously, followed by a chill in one and one-half hours. Vomited; some pain in stomach, slight diarrhea, appetite impaired. Temperature 101°, pulse 110. As the reaction rapidly sub-

**Indianapolis Medical Journal,* July, 1912, p. 293.

sided, the patient became sleepy and drowsy; slight reaction at point of injection.

April 10, 5 Cc. Rheumatism Phylacogen given; no chill or nausea, slight pain in stomach, bowels normal, appetite improved, slight headache. Temperature 100°, pulse 90. Pain, tenderness, soreness, and stiffness of joints disappearing.

April 11, 10 Cc. Rheumatism Phylacogen subcutaneously. Temperature 98.6°, pulse 90. No reaction; no pain, tenderness, soreness, or stiffening of joints.

April 12 and 13, received daily doses of 10 Cc. Rheumatism Phylacogen subcutaneously. No reaction; pulse and temperature normal.

April 14 and 15, received daily doses of 10 Cc. Rheumatism Phylacogen. No reaction; temperature and pulse normal.

During this time there was no recurrence of acute pain, soreness and stiffness of joints disappearing, and condition remains so until the present time, July 1, 1912. Heart condition has materially improved under digitalis and proper care.

Case 2.—Mrs. A., aged 72.

History: Suffered from chronic rheumatism for twenty years with pain, soreness, and stiffness of joints and muscles, with neuralgic pains at intervals, noticeable at certain changes of the weather.

Treatment: May 20, 1912, 4 Cc. Rheumatism Phylacogen subcutaneously; slight chill, followed by fever lasting two or three hours; no local reaction.

May 21, 6 Cc. Rheumatism Phylacogen subcutaneously; distinct chill, followed by considerable fever lasting two to three hours. Some diarrhea, considerable exhaustion, appetite impaired, no local reaction; pain in joints disappearing.

May 23, 10 Cc. Rheumatism Phylacogen subcutaneously; distinct chill, followed by fever lasting two to three hours. Some diarrhea, general exhaustion, impaired appetite, no local reaction; pain practically gone.

May 24, 10 Cc. Rheumatism Phylacogen subcutaneously; distinct chill followed by fever; marked prostration, no pain, tenderness, or soreness of joints or muscles, occasionally slight neuralgic pains.

May 25, 10 Cc. Rheumatism Phylacogen, followed by distinct chill, and sharp rise of temperature, lasting two or three hours. Extreme prostration, loss of appetite, no local reaction; pain entirely disappeared.

May 26 and 27, 5 Cc. Rheumatism Phylacogen each day, with no general or local reaction, no pain.

May 28, 10 Cc. Rheumatism Phylacogen subcutaneously; very slight reaction; improvement in appetite, free from pain.

May 29, 30 and 31, received daily doses of 5 Cc. Rheumatism Phylacogen; no reaction; patient gradually improved in strength and free from pain.

June 1, 5 Cc. Rheumatism Phylacogen; no general or local reaction, no pain, tenderness, or soreness in joints or muscles, and apparently entirely free from rheumatism. No recurrence of trouble at present date, July 1, 1912, although the weather has been cool and damp, and patient has invariably had pains under similar weather conditions.

Case 3.—Miss N., aged 13.

History: Has had occasional attacks of tonsillitis and rheumatism since seven years of age, which developed a decided mitral regurgitation. At the present time she has pains, tenderness, and stiffness of ankles and right knee.

Treatment: June 4, 1912, 5 Cc. Rheumatism Phylacogen subcutaneously; chill, fever, some nausea. Unable to walk with comfort.

June 6, 5 Cc. Rheumatism Phylacogen; slight fever, no local reaction, less pain, appetite impaired.

June 7, 5 Cc. Rheumatism Phylacogen; slight chill and fever.

June 8, 5 Cc. Rheumatism Phylacogen; distinct systemic reaction, with some exhaustion, severe pain and swelling in left wrist and hand, appetite impaired.

June 9, 5 Cc. Rheumatism Phylacogen; pain and swelling in left wrist and hand, rather marked exhaustion with impaired appetite.

June 10, 10 Cc. Rheumatism Phylacogen; pain and swelling of wrist and

hand subsided, no pain anywhere in body; marked exhaustion, and impaired appetite.

June 12, 10 Cc. Rheumatism Phylacogen; no reaction, entirely free from pain, no other symptoms. At present time, July 1, 1912, there has been no recurrence of pain, patient has grown stronger, and heart condition is improving under digitalis and care.

The results obtained in the above cited cases indicate the following conclusions:

1. The Phylacogen should be administered subcutaneously in 5- to 10-Cc. doses daily, disregarding the reaction, until the patient is entirely relieved.

2. Any case of true rheumatism, whether acute, subacute, or chronic, should yield to this treatment, so far as the rheumatism infection or associated infections may be causative factors.

3. Heart conditions complicating acute and chronic rheumatism are much improved and become amenable to treatment as the patient recovers from his rheumatic symptoms.

4. The number and size of doses required to relieve any given case of rheumatism are governed entirely by the peculiar individual character of the patient, each case presenting its own indications.

NEW TREATMENT FOR RHEUMATISM.*

For the past three years Dr. A. F. Schafer of Bakersfield, Cal., has been studying the use of mixed vaccine therapy in rheumatisms. He has now perfected a preparation under the name of Phylacogen, which, from clinical reports, appears to be of value in various rheumatic conditions, especially in the acute, subacute, and to some extent in the chronic types.

Schafer regards the remedy as a modified vaccine, and as such it should at least command our attention, since so much study is now being given to the development of serums and vaccines in the treatment of various types of infectious diseases.

In the series of cases reported by Crandall in the June issue of the *Journal of the Missouri State Medical Association,* Phylacogen was the only antirheumatic remedy used. The clinical results from this series in the St. Louis City Hospital seem to support Schafer's conclusions.

If further reports on this remedy are equally favorable, we may have added to our vaccine remedies one which will materially aid us in the treatment of rheumatic affections, and to a great degree avert the chronic joint involvements and dangerous heart complications that are such common concomitants of rheumatic conditions at present.

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*Editorial in the *Journal of the Arkansas Medical Society,* July, 1912, p. 55.

EXPERIENCE WITH PHYLACOGENS IN CERTAIN BACTERIAL DISEASES.*

By W. A. Jenkins, M. D., Louisville, Ky.,
Professor of Medicine and Clinical Medicine in Medical Department of University of Louisville.

I wish to present some practical deductions from the use of the Schafer phylacogens. Our trials were carried out in the Louisville City Hospital, where the most careful, rigid and accurate observations were kept on the behavior of each case.

Acute Articular Rheumatism.

In the acute stage of this disease one of our patients seemed to receive no benefit; but as soon as the Phylacogens were dropped and a salicylate treatment instituted, marked results were obtained. On the other hand, in a subacute rheumatoid case a patient in the next bed to the acute articular case obtained no benefit from the salicylates and iodides and showed considerable improvement as soon as we put him on the Phylacogen.

Rheumatoid Arthritis.

The most typical case of this condition that we had under observation was a private patient, a man who had gone the rounds of the specialists and the antirheumatic resorts. He was badly crippled and suffered a great deal of pain for a number of years. He was given Phylacogen subcutaneously at first. Then we began to give it intravenously, small doses at first, making daily injections, and gradually increasing the quantity until we reached the maximum dose—10 Cc. Marked general reactions were had with the first few intravenous injections—such as abdominal pain, nausea, vomiting, chill, a sense of numbness and great bodily weakness. Marked improvement, at least in range of motion and relief from pain, was obtained in this case. Some weeks later the pain seemed to return, whereupon I again administered a series of two or three injections intravenously. He has been suffering up to date none or very little pain and he is able to handle himself 100% better than formerly.

In conclusion, allow me to say that Phylacogens are of undoubted clinical value. They will not do away with drugs entirely, but they are undoubtedly a valuable addition to our therapeutic aramentarium. Their future may be even greater than I predict. It is certainly a positive and perhaps a brilliant one.

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*Medical World, July, 1912, p. 285.

RHEUMATISM PHYLACOGEN.*

By J. T. Dunn, M. D.,

Surgeon L. & S. I. Traction Co.; Member Jefferson County Medical Society, Kentucky State Medical Association, American Medical Association, Louisville, Ky.

To listen to histories and read reports of how this dreadfully painful, crippling disease has yielded to only a few doses of the latest production of man, known as Rheumatism Phylacogen, is little short of miraculous, dramatic to say the least.

It is necessary to make a proper diagnosis of your case, eliminating all forms of septic arthritis, especially that of gonorrheal origin. Rheumatism Phylacogen may be used as a diagnostic agent, in that if the case is not one of true rheumatism failure will result.

That the case is one of true rheumatism there should be no doubt, then a decision as to how the dose is to be administered, subcutaneously or intravenously, is to be decided.

Mrs. V. G., aged 27 years. Ill of rheumatism 10 years, commencing in right knee, followed soon in the left. They were very much swollen, red and painful. One year ago both shoulders, elbows and wrists, with three fingers and thumb on left hand and thumb only on right hand, became affected. The left wrist became so stiff that motion was almost entirely lost and the motion in all the other affected joints limited to about 50 per cent. of their normal range.

The customary rheumatic treatment was resorted to, in addition to five weeks at Hot Springs, Ark.; three months at Martinville in 1911, and another three months in 1912; and in the interval frequent trips were made to various parts of the country where hopes of relief would be obtained, including Saratoga Springs, Mt. Clemens, Clark's Baths, Detroit, Mich., and French Lick, etc., etc., all to no avail. The progress of the disease was not checked, nor were the pains relieved. The only relief obtainable was by free use of aspirin, of which at the least calculation the patient has taken 6500 grains since last June (now 11 months), and by actual count 6000 grains in the past 8 months, or about 25 grains per day.

For one year she has been obliged to use a cane in walking, and since the arms became involved one year ago has been helpless in so far as dressing, feeding herself, combing her hair, etc., it being impossible to get the hands to the head or mouth. Admitted to hospital April 24, 1912; walking difficultly by aid of cane, both knees firmly bandaged with flannel and very painful; the use of pillows under and between the knees were necessary. Patient unable to move herself in the slightest, the service of a special nurse being needed to make all the necessary movements for the patient, who declared that rheumatism was "a most difficult guest to entertain." A chart showing the range of motion in both upper and lower limbs was made upon admission. Temperature 98.2° F. Pulse 84. Respiration 20.

April 24th: 10.00 A.M., 5 Cc. Rheumatism Phylacogen was administered subcutaneously beneath the left scapula. The only reactionary symptoms were elevation of temperature and pulse which began in 3 hours and increased until temp. 102° F. and pulse 112 was recorded in 8 hours, when both gradually fell to normal. Patient complained of soreness at site of injection, but had a fairly good night.

April 25: 8.45 A.M., 5 Cc. s.q. in right hypogastric region (the back being too sore to admit of further medication).

*American Practitioner, August, 1912, p. 364.

The reaction reached its height within 11 hours, temp. being 101⅘° F. and pulse 106. Had a good night's sleep, but complained of pain at site of injection (no relief of pain).

April 26th: 9.45 A.M., 10 Cc. given in left hypogastric region, and at 10.45 had cold, clammy perspiration with chilly sensation; heat applied. The reaction reached its height in 9 hours, temperature being 104½° F., pulse 120. Fairly good night, no relief from pain.

April 27th: 9.15 A.M., 10 Cc. given in right hypochondriac region; the reaction reached its height within 10 hours, temperature being 101⅘° F., pulse 122; had a fairly good night. No relief from pain.

April 28th: 9.15 A.M., 5 Cc. intravenously. Reaction began to show in 20 minutes by marked chill, which was a severe chatter, causing not only the patient to tremble from head to foot, but the bed to be thrown into a state of vibration. The chill continued for 35 minutes and was accompanied by blueness of lips, ashy hue of face and frequent outbreaks of cries by patient of pains in the affected joints, interspersed with vomiting lasting 20 minutes projective in character. Hot-water bottles and additional covers were resorted to, and as the chill passed off, hot lemonade administered, but promptly ejected; thirsty and uncomfortable; lapsed into drowsy condition, but did not sleep. Reaction reached its height in 3½ hours, temperature being 106° F., pulse 136, respiration 39, which within 11 hours dropped to temperature 101⅘° F., pulse 126, respiration 30. Body profusely bathed in perspiration; slept fairly well and awakened free from pain. To our great surprise and delight was able to change her position from side to side at will without the slightest pain, and marked improvement in range of joint action was noted, being about 25 per cent. improvement. General condition much improved; patient now able to easily reach the mouth, hair and any portion of the body without pain, and as a demonstration kicked both feet at one time into the air, making flexion and extension without pain; has continued to improve from that day (April 29th) notwithstanding the continued rainy weather. The day following the first intravenous injection none was given. Upon this day she was very comfortable and sat up in a chair two hours in the afternoon without pain or discomfort other than stiffness of the joints.

April 30th: 9.00 A.M., 2 Cc. intravenously, followed in 20 minutes by the typical reaction as before described, chill, vomiting, sweating, except not so severe, temperature reaching only 102° F., pulse 120; slept well.

May 1st: 8.45 A.M., 10 Cc. intravenously, followed in 20 minutes by typical reaction, temperature 102⅗° F., pulse 114. Slept well and feeling better.

Attention is called to herpes upon right cheek, size of half a dollar, and two points upon back, low down, same size, attributable to Phylacogen, and approaching menstrual period, which appeared the following day. No Phylacogen given during that period: zinc oxide ointment applied locally; herpes disappeared when menstrual period was over. During this rest from treatment patient's appetite improved very much and she spent most of her days in a wheel chair, with short walks about the hospital, supported by the nurse, going out into the yard when weather conditions were suitable; sleeping better and free from pain.

May 6th: 9.00 A.M., 8 Cc. intravenously, followed promptly by the regular type of reaction, temperature reaching only 103⅘° F., pulse 130 within 3 hours, 45 minutes, but soon receded. Patient feeling better at 2 P.M., sitting up in bed at 6 P.M., enjoyed supper at 9 P.M., and up walking about the room and hall at 9.30 P.M.; retired at 11 P.M. Still complaining of soreness and presenting some discoloration over site of previous subcutaneous injections.

May 7th: 9.15 A.M., 10 Cc. intravenously, followed by typical reaction, temperature reaching its highest within 3 hours, being 103⅗° F., pulse 124; patient up in chair at 3 P.M.

Dismissed from hospital May 8th.

May 9th: 9 A.M., 10 Cc. intravenously.

May 10th: 9 A.M., 10 Cc. intravenously. Making a total of 9 packages of 10 Cc. each, covering a period of 17 days.

The patient is highly pleased with the outcome of the treatment and is now, even in this short time, able to sleep better, eat better, walks without pain and unaided, goes every place about the home, dresses herself, combs her hair, and feeds herself, and all without the use of aspirin, which she discontinued May 8th. Has felt no inclination to resume its use and has discarded the flannel bandages, while her faithful friend, the cane, has an honored place upon the hall tree.

It is useless to say that so far we are very much pleased with Rheumatism Phylacogen. It is certainly a boon to this class of sufferers, and although the reaction from its intravenous administration is severe, it is to be preferred in suitable cases to the subcutaneous method.

Note the difference in the physical condition in this case report, where subcutaneous injections, even in 10-Cc. doses, did not lessen the painful conditions of joints, whereas the very first intravenous, consisting of only 5 Cc., gave immediate relief. It is true that intravenous medication is a surgical procedure and should be given only by physicians accustomed to surgical cleanliness and surgical technic. I believe it is perfectly safe in the hands of such men; others should use the subcutaneous method and give the treatment for a longer period and be satisfied with less prompt results.

RHEUMATISM PHYLACOGEN.*

By George Wood, M. D., Indianapolis, Ind.

Owing to the lack of definite knowledge as to the primary cause of rheumatism, the chief aim at treatment heretofore has usually been to relieve pain by the use of analgesics, either locally or internally, and trust to Providence for relief. Many acute cases have apparently recovered only to recur at frequent intervals in a more or less severe form and to eventually become chronic with an occasional exacerbation of acute painful symptoms, and sooner or later render the patient a helpless charge.

This is the picture frequently seen at free dispensaries, charity hospitals, private sanatoriums, and the more fashionable resorts, which indicates that all classes may become afflicted with this disease, the rich or the poor and the old or the young.

Of all the preparations used in the treatment of this disease none have given me anything like as good results as Rheumatism Phylacogen.

Case 1.—Aged 42.

History: Suffered from rheumatism for twelve years. Tried osteopathy, baths, electricity and practically all other forms of treatment with but slight temporary relief. The patient has experienced a return of the acute rheumatic symptoms two or three times a year, lasting one time for eighteen weeks. I first saw the patient on May 18, 1912, after he had been suffering continuously for about four months. The joints were swollen and tender. Patient lay with hands and feet upon pillows,

*Medical Progress, August, 1912.

unable to move, presenting a most severe type of acute articular rheumatism.

Treatment: May 18 administered 5 Cc. Rheumatism Phylacogen subcutaneously. Gave 10 Cc. Rheumatism Phylacogen on succeeding days until 60 Cc. had been given. Following the second dose the pain began to subside, and after the fourth dose the swelling had practically disappeared. On the day following the sixth dose he had a recurrence of pain in the left hand, after which he received 10 Cc. Rheumatism Phylacogen daily until four doses were administered. After each of these doses the patient had general reaction with chill and elevation of temperature lasting about twenty minutes, followed by profuse perspiration, which lasted two or three hours. There was some nausea but no vomiting, restless at times with disturbed sleep. The patient received in all 100 Cc. of Phylacogen, after which the patient returned to work feeling perfectly sound and well.

Case 2.—Mrs. K., aged 63.

History: Chronic articular rheumatism for twenty-five years. During the past four years unable to walk or feed herself with her right hand. Fingers of right hand deformed. Feet deformed. Partial ankylosis and tight flexing of the toes.

Treatment: The first dose of Rheumatism Phylacogen was given on April 29, 1912. The first 60 Cc. produced very little reaction. From that time until I had given her 130 Cc. she had the usual reaction, consisting of chill, nausea, sweating and slight nervousness. The first improvement was noticed, greatly to the delight of the patient, when one finger began to straighten; next the toes began to extend, with a general subsiding of all pain and tenderness. At the present time, June 1, 1912, the patient is able to be up and around, visits her relatives (a thing she has not been able to do for eight years), takes automobile rides, and enjoys herself as of former years. All the active rheumatic conditions have apparently disappeared and she is gradually recovering the use of all her limbs; and, from present indications, promises in time to make a complete recovery.

ACUTE ARTICULAR RHEUMATISM TREATED WITH PHYLACOGEN.*

By Edward B. Richey, M. D.. Louisville.

Mrs. H., aged 65, white, female, housewife.

Diagnosis: Chronic articular rheumatism.

History: Mother of eleven children, seven of whom are living and in good health. Husband, aged 70, in good health and very active. Father died at the age of 64 of cancer of the stomach. Mother died aged 30, childbirth. One brother living in good health; three brothers died in infancy. No sisters. Usual diseases of childhood; no history of rheumatism in family.

Symptoms: Subjective, Thirteen years ago feet and ankles pained when getting up in the morning. Went to "Springs" that summer but received no benefit. One year later knees, hands, fingers and elbows became involved, necessitating the use of crutches at times. Eight years ago had to resort to crutches all the time and then had great difficulty in getting about and suffered great pain. Was unable to turn in bed without assistance.

Objective: Slight seal-fin deformity of both hands; both knees and both elbows slightly ankylosed; pain in all these joints, also in hips and shoulders; cannot turn in bed without assistance. Has been unable to walk, even with assistance of crutches, for past three months. Suffers from insomnia on account of pain, appetite poor; vertigo; practically bed-ridden; is very obese.

**Kentucky Medical Journal,* August 15, 1912, p. 647.

Treatment and Results: Spent one winter in the South; has taken all the rheumatic remedies, osteopathy, hot baths, constitutional and local measures, with only very temporary relief and a return of former pains much exaggerated.

Feb. 8, 1912. Rheumatism Phylacogen, 2 Cc. subcutaneously.

No reaction, systemic or local; no change in symptoms. Temperature, pulse and respiration normal.

Feb. 9th. Rheumatism Phylacogen, 5 Cc. subcutaneously.

No special reaction noted. Ate hearty dinner. Kidneys very active. Temperature, pulse and respiration normal.

Feb. 10th. Rheumatism Phylacogen, 7 Cc. subcutaneously.

Temperature slightly subnormal; appetite not so good; somewhat depressed.

Feb. 11th. Temperature, pulse and respiration good; appetite normal; no Phylacogen to-day.

Feb. 12th. Rheumatism Phylacogen, 2 Cc. intravenously, given very slowly (four minutes' time).

Thirty minutes after injection had chill lasting 55 minutes. Nausea, vomiting, headache, occasional blindness; very thirsty. Maximum temperature 103°; pulse 120. Reaction gradually subsided; slept well, turned in bed without assistance, and ate fine breakfast next morning.

Feb. 13th. Rheumatism Phylacogen, 4 Cc. intravenously, taking five minutes' time to give injection.

Forty minutes after injection had chill lasting 20 minutes; severe headache; temperature 102.4°; pulse 120; pains in joints; numbness over body. Slept very well, and ate light breakfast.

Feb. 14th. Rheumatism Phylacogen, 5½ Cc. intravenously; five minutes' time taken to administer this dose.

Twenty-five minutes after injection, chill lasting one hour, not so severe as yesterday; no headache; thirsty; very comfortable. Maximum temperature 101°; pulse 102.

Feb. 15th. Rheumatism Phylacogen, 8 Cc. intravenously.

Thirty minutes later had chill lasting 45 minutes; sleeping off and on; thirsty. Maximum temperature 101.2°, pulse 108. Light diet; practically free from pain.

Feb. 16th. Rheumatism Phylacogen, 10 Cc. intravenously.

Fifteen minutes later had chill lasting 35 minutes; no headache; maximum temperature 101.2°; pulse 102; light diet.

Feb. 17th. Rheumatism Phylacogen, 10 Cc. intravenously.

Fifteen minutes later had chill lasting 45 minutes. Maximum temperature 99.4°; pulse 90; slept in afternoon; felt fine.

Feb. 18th. Temperature, pulse and respiration normal; slept fine last night; ate heartily; walked on crutches and sat up nearly all day.

Conclusions: The results in this case are, as the son in a letter to me this morning put it, "almost incredible." The case having continued over a period of twelve years, the patient being unable to move her body, even in bed, when we begun the Schafer treatment, justifies the above statement. I heartily endorse its use, but find it necessary to administer laxatives and tonics at the conclusion of the intravenous treatment. Am convinced also of the necessity of extreme care in the technique and in close observation of the patient as to the vital parts during the treatment. I believe the intravenous method is the method *par excellence.*

This patient is practically free from all pain, says she feels better than for twelve years, has free motion, can extend her limbs several inches more than before treatment. She cannot find words to express her satisfaction and gratification.

ARTICULAR RHEUMATISM TREATED WITH PHYLACOGEN.*

By J. A. Guthrie, M. D., Huntington, W. Va.

Mrs. A., aged 43, has two children, youngest aged nine. Her father and mother are both dead. Mother and mother's mother were both subject to rheumatism with arthritis deformans. Patient has never had any serious illness prior to this condition. Says she has had malaria all her life, but there is no history to that effect. Present trouble began in 1908. Toes and fingers were the principal parts affected. There was a gradual enlargement and formation of fibrous tissue. At present, first and second fingers of each hand show enlargement about the joints. Since 1908 she has had attacks of acute inflammatory rheumatism, involving the muscles of shoulder, hip, and knees, with a great deal of swelling; also, the fingers and toes were very puffy and tender.

I gave her 50 Cc. of Phylacogen in six doses. There was violent reaction, pain and swelling at the site of injection, with marked constitutional symptoms. Six hours after injections, temperature rose to 103°, pulse to 100. I kept the patient in bed during treatment, and on a light diet, and used laxatives when necessary. I found the biceps and buttocks the least painful regions in which to use the injections. At the time of treatment the feet were swollen until the shoes could not be laced. No improvement took place for ten days, when the inflammatory condition began to gradually subside. At present there are no signs of inflammatory rheumatism.

The arthritis failed to improve.

The patient is delighted with the treatment of the inflammatory rheumatism, and I feel that it has accomplished more than anything I have ever used.

RECURRING ARTICULAR RHEUMATISM AND ITS TREATMENT WITH PHYLACOGEN.†

By Frank C. Walsh, M.D., Mukwonago, Wis.

I have used Rheumatism Phylacogen in one case of rheumatism and report the following results, with history of case:

Miss B., aged 35, white, had attacks of rheumatism almost annually since she was twelve years old. I first saw her in an attack about one year ago. She was then suffering from subacute rheumatism, and had been under treatment for about two months.

Examination showed swollen and reddened joints about the hands, with enlarged and painful knees and ankle. All the joints of the body were more or less stiffened.

After a long course of persistent treatment with salicylates and tonics the patient recovered. She was subjected to another attack the following winter, which began about the middle of December. It grew progressively worse until about the 25th of April. At this time, although large doses of sodium salicylate were given, the various joints were very stiff and painful. The patient could scarcely get out of a chair alone. The temperature varied from normal to 103°.

I gave one-half dose or 5 Cc. of Rheumatism Phylacogen about May 1. No particular reaction followed. The second day I repeated the dose, with no reaction. The third day I gave 10 Cc., which was followed by a slight rise of temperature. The next day this was repeated. This was followed in about half an hour by a severe chill and a temperature of 105°. The next day the patient felt ill, so a day was allowed to elapse before another dose was given. The next two doses, with a day's in-

Therapeutic Notes, September, 1912, p. 100.
†*Therapeutic Notes*, September, 1912, p. 95.

terim, were not followed by so severe a reaction, yet the patient felt "chilly" and the temperature was up to 105°. The treatment was now discontinued for about a week, as the patient complained of weakness, although the symptoms of rheumatism had remarkably improved.

I then put the patient on iron, quinine and strychnine. One week later another dose of Phylacogen was given, which was followed by increase of pain and weakness. However, she improved greatly. She could now move her joints freely without pain. Over two weeks have now elapsed since the last dose. She is still taking the iron tonic. Her joints have greatly improved, swelling and redness have entirely disappeared, and she is apparently gaining in weight and general health every day. She says she feels fine.

Summary and Conclusions: This patient, who had been suffering for years with intermittent attacks of rheumatism, has no doubt been wonderfully improved by the Phylacogen treatment, and this after a very active course of salicylates. I think that as soon as her general health has improved she should have more of the Phylacogen, as at times she still has a little pain in the joints, and, probably, unless more is given a complete cure and cessation of attacks cannot be expected.

TREATMENT OF RHEUMATISM.*

By A. W. Moore, M. D., Portland, Ore.

Since the idea has been abandoned that rheumatism is caused by acid in the blood, and the view that it is an infection has taken its place, a wide field for investigation is brought before us. The resemblance to so many infectious diseases, characterized by muscular pains in different parts of the body, suggests the true nature of this malady.

For a long time this was doubted, but finding of the germs in the inflamed parts of the body, and the cultivation and inoculation in animals producing the symptoms of rheumatism, together with the heart lesion, all tend to establish this as the most certain explanation. Poynton and Paine have successfully isolated the specific microörganism.

The entrance of this specific germ into the system could come from a number of different sources. Besides the tonsils we have other sources, as from chronic constipation, caused chiefly by visceroptosis, which causes obstruction, decomposition and autointoxication. I wish to mention the pneumococcus and gonococcus which can enter the system and produce inflammation so closely resembling ordinary rheumatism in its symptoms that the microscope alone can tell which of these germs causes the trouble.

Removing the tonsils in children will in my opinion be a great factor in preventing rheumatism and its dangerous consequences to the heart in young people, for I have failed after a careful inquiry in many years to find a case of rheumatism in young persons, where the tonsils were successfully removed, or where I could not find tonsils or adenoids.

In adult life the trouble will be more liable than in childhood to result from the bowels, and our efforts should be directed to prevent the entrance of the germ from this source. The cause of chronic constipa-

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**Northwest Medicine,* November, 1912, p. 332.

tion should be sought and removed, if we expect to cure some of the cases of chronic rheumatism in the adult.

Bacterial therapy offers one form of treatment more intelligent than all others, and the most successful. That pain in the region of joints can be caused by gonococci, pneumococci, or rheumatococci we must all admit, and when we are able to demonstrate which of these or which of any others is most potent in causing it and apply its proper vaccine, then will the treatment of this disease stay in the ranks of the regular profession.

The bacterial product used by me is prepared by Parke, Davis & Co., and appears to be most acceptable. Sometimes quite a reaction sets in after an infection and the patient complains of pains in the muscles, some rise of temperature and pain at the seat of the injection, with numbness in different parts of the body. He may refuse to submit to another injection, but if different portions of the body, like the interscapular or the abdominal region, and the anterior portion of the thigh be selected, it will largely obviate this, and the relief in severe, acute rheumatism is so marked that patients are rewarded for their inconvenience.

The substance should be injected under the skin and not into the muscle, as it causes less pain. About 36 to 48 hours is often enough to give it, when in three or four days a marked improvement should be observed and the dose given every three or four days for a while longer to prevent relapse.

If Phylacogen be given according to instructions and carefully watched, good results are sure to follow. This treatment is adapted to all cases of rheumatism, either acute or chronic, due to the streptococcus rheumaticus. Of course it will have no effect upon osseous changes already present about the joints.

Rest in bed is more important than all other lines of treatment, to prevent cardiac lesions. Immobilizing the joints with some suitable splints, preferably plaster of Paris, affords the greatest relief, and I have found it necessary to apply this to each limb of the body at the same time.

Hot or cold applications about the inflamed joints, together with stimulating liniments, favor the flow of blood and lymph through the inflamed parts.

To sum up the treatment—prevent the bacteria from entering the system, rest in bed, immobilize the joints affected with great pain, ascertain which specific bacterium causes the trouble and use its bacterin.

TREATMENT OF RHEUMATISM WITH PHYLACOGEN.*

By F. P. Dorsey, M.D., Hartington, Nebr.

Man, aged 43, married, American. On September 10th he had chill and fever, and stiffness with pain in all the joints, especially left knee, and both feet —swollen, red and very painful. Was unable to use his legs or feet; temperature 104°, pulse 110, respiration 22. One year ago patient had similar attack.

Sept. 12th. Every joint in body was involved. Gave him 20 grs. sodii salicylate every two hours for 15 hours and on the third day repeated salicylate. He was unable to retain the medicine; no relief.

Sept. 13th. Gave him 2 Cc. Rheumatism Phylacogen. Had severe reaction: feeling of numbness over whole body; rise of temperature to 102°; pulse 116; respiration 22.

Sept. 14th. Was free from pain. Gave him 5 Cc. Phylacogen. No reaction; temperature 101.4°; free from pain; could move his feet and knee, although very much swollen.

Sept. 15th. Gave 5 Cc.; continued to improve; sat up in chair for two hours; no pain in joints.

Sept. 16th. Gave 5 Cc.; left leg swollen; less free from pain; sat up two hours

Sept. 17th. Gave him 10 Cc. in abdomen. Reaction marked; numbness; slight chill; rise in temperature to 101.2°; pulse 120; respiration 20; absolutely free from pain; swelling nearly all gone.

Sept. 18th. Very much improved; could sit up; temperature 98.4°; pulse 90; respiration 19.

Sept. 20th. Could stand and walk across the room. He feels well, eats well, etc.

From first dose September 13 of 3 Cc. Rheumatism Phylacogen he showed signs of improvement. Its effect was immediate and he was free from pain. I gave him in all 28 Cc. Phylacogen. He had a severe reaction from 10 Cc. The only other medicine given him was 1/40 gr. strychnine every two hours; did not use any local application and no sedative.

In this case Phylacogen gave excellent results. October 2 the patient was walking around, free from pain, and says he feels perfectly well.

RHEUMATIC AFFECTIONS OF SOME OF THE SPECIAL ORGANS.†

By John J. Kyle, M.D.,

Professor of Laryngology and Otology, University of Indiana, Medical Department, Indianapolis, Ind.

There is a preponderance of examples that suggest the tonsil as frequently being the avenue of infection in so-called inflammatory rheumatism. The size of the tonsil has nothing to do with the amount of infection.

Of the many inflammatory conditions of the throat, those of so-called rheumatic nature are not the most infrequent.

Irritation of the oropharynx, rheumatic in character, is not usually characterized by much hyperemia or inflammation, differing thus from typical rheumatism of joints and muscles. However, in the great majority of cases, the patient will give a history of wandering pain in some joint or region of muscles, in addition to symptoms of irritation in the throat and neck muscles.

**Western Medical Review,* November, 1912, p. 606.

†*Therapeutic Gazette,* Nov. 15, 1912, p. 770.

Many cases of acute coryza and nasopharyngeal irritation are often due primarily to the streptococcus rheumaticus.

It is a good presumption that many of the pains in the nose, radiating to the eye, in which no internal pressure is detected and there is no suppuration of the sinuses, are rheumatic. Many cases of this character respond to aspirin compounds.

Rheumatism as an etiologic factor in diseases of the eye is well recognized. The eye condition may be confined to the conjunctiva (ocular) muscle, or iris. I have seen a single muscle involved. These three structures are apparently more susceptible to this form of infection than other structures of the eye.

The diagnosis of rheumatic iritis is not very difficult; syphilis and rheumatism being the two important factors in causing the disease.

I have usually associated whitish places or calcareous deposits found in the drum membrane of the ear with rheumatism or a rheumatic tendency. These deposits are primarily of inflammatory origin.

Politzer is authority for the statement that rheumatic paralysis of the acoustic nerve does sometimes occur. The same may be said of the facial nerve which may become paralyzed from a local or general rheumatic infection.

Rheumatic involvement of the larynx is a condition more often observed than a like condition of the ear. Acute polyarthritis has been observed in laryngeal joint disease from urethral gonorrhea. The infection from the streptococcus rheumaticus may affect one or another muscle of the larynx. The patient complains of pain in the region of the larynx, constant, or during the act of speaking or swallowing. There is usually pain upon pressure in some distinct spot, and irritation upon mechanical movement of the laryngeal box. Examination with the laryngoscope does not always show local change. The diagnosis is made upon the history of the case.

For the prevention of rheumatism it is necessarily imperative that suppurating foci be sought and eliminated.

Previous to the introduction of the modified bacterial derivatives (Schafer) the treatment was local and constitutional.

This one new remedy (Schafer), which so far has been a valuable one in my experience, has a dual advantage over salicylates and their derivatives.

Case 1.—Rheumatic iritis. Patient aged 40 years. Second attack of iritis; inflammation confined to the left eye; had been suffering for one week before coming under observation; had had three doses of Rheumatism Phylacogen in 5-Cc. doses without any relief of symptoms. Patient put to bed and given salicylates in large doses. The following morning reported complete absence of pain; on the fourth day left the hospital free from pain.

In this case I feel absolutely certain that the Phylacogen must have had a decided and beneficial effect and that the salicylates were greatly assisted in their therapeutic effect by the previous doses of Phylacogen.

Case 2.—Mr. H., aged 56 years. History of rheumatism in neck and throat for six months continuously; said he had suffered a great deal from sciatic rheumatism; complained of pain and smarting of the throat with tenderness of neck and muscles for three months past; no temperature. No objective sign in throat; tonsils atrophic.

Rheumatism Phylacogen in 5-Cc. doses was administered biweekly; eight injections were given, followed by a two-week interval, while patient visited in Atlantic City. No reaction, as fever or chill, from the injection. The doses were given at long intervals, on account of the occupation of the man and his frequent absences from the city.

Results good. After three weeks he complained of little or no distress in throat. Treatment continued biweekly up to date, but in 2½-Cc. doses.

Case 3.—Mr. S., aged 40 years, complained of severe pain in throat; aching in and tenderness about the neck muscles; some difficulty in swallowing; pain and distress continued for forty-eight hours before consulting me; no objective symptoms. Patient instructed to go to bed and receive Rheumatism Phylacogen in 10-Cc. doses, July 5. The day following he reported at the office, saying the throat was very much improved. Patient said he felt some general distress following the administration of the drug, but nothing of any consequence. Injection repeated the second day. On the third day patient reported the symptoms had disappeared.

Case 4.—Man, aged 50 years. History of articular rheumatism dating back for years; attacks usually lasted five or six weeks and sometimes much longer. This was a case in my own family, and in consequence I went outside my specialty. When I saw the patient his right thumb and index finger were greatly swollen, red, and extremely painful and tender to the touch. There was also swelling of like character over the dorsum of the right foot. Patient could hardly walk; temperature 102°; had been suffering with this condition for a week before I saw him. The swelling sometimes subsided and then recurred in some other portion of the body. We put this man to bed and began the administration of Phylacogen in 5-Cc. doses. There was no untoward results from the Phylacogen, except one day. We continued this treatment daily for a week, with the exception of the day when he complained of the reaction. On this day his temperature ran to 103°. At the end of the week he was able to drive out in his carriage. We suspended the daily injection of Phylacogen and gave it only twice the following week, rather as a prophylactic measure than anything else. At the end of the second week patient was able to be about. The results in this case were distinctly favorable.

Case 5.—Woman, aged 67, in my own family; suffered from rheumatism for years, this time localized in the hands; had just returned from a trip around the world, and at Colombo was laid up in bed for quite a while with rheumatism. I gave her four doses of Rheumatism Phylacogen, repeating the dose daily, and kept the patient in bed all the time. In this case there was only slight rise of temperature, but nothing of any consequence. As to the origin of infection, I do not know. The treatment was discontinued after the fourth day as her symptoms were rapidly disappearing. Two months later the patient reports that she is still free from pain.

A CASE OF CHOREA CURED WITH RHEUMATISM PHYLACOGEN.*

By T. R. Rice, M.D., Petersburg, Ind.

Miss McM., aged 15, developed chorea in November, 1910. She was taken from school and treated for about three months, when she seemed to recover entirely from the choreic condition. In November, 1911, she again developed chorea, which was worse than the first attack and slowly increased in severity until February, 1912, when she was so nervous she could not feed herself and could scarcely walk without assistance. She began having irregular pains in the arms, particularly the left one, and in the course of a month was complaining of more or less pain throughout the body with some swelling of the hands and feet. During the first two weeks of April she had a temperature ranging from 100° to 104°, and the pains were very severe; there was a loss of appetite, emaciation, and considerable disturbance of the digestive tract, with nausea, vomiting and diarrhea. The pulse-rate was from 115 to 150. There was pain all over the body, particularly in the chest, which was so severe that the patient was moved with difficulty.

On April 14 I gave her 5 Cc. of Rheumatism Phylacogen, hypodermatically, 5 Cc. on the 15th, 10 Cc. on the 16th, and 10 Cc. each day thereafter until she had taken 60 Cc. Twelve hours after the first injection the patient began to show signs of improvement and continued to improve for a week, and the pains and movements practically had disappeared. The appetite returned, the digestion became better, sleep was undisturbed, and the smile once more played about the face.

Everything moved along smoothly for about eight days, when the patient had a relapse, with a return of most of the ugly symptoms and a high fever. I then asked my druggist to send for another supply of the Phylacogen, thinking I would give it a thorough trial. I proceeded to medicate the patient until I could get the Phylacogen, and in three or four days she began to show marked signs of improvement, and by the time the Phylacogen arrived she was so much improved that it did not seem necessary to use it. She seems practically well.

A CASE OF ARTICULAR RHEUMATISM TREATED WITH PHYLACOGEN.†

By F. L. Smith, M.D., Lucas, Kans.

Miss H., aged 45, was first treated nine years ago for an acute attack of inflammatory rheumatism, followed six weeks later by endocarditis, and dropsy seven months after the attack. She has had numerous acute attacks since that time.

On April 18 found the left shoulder, elbow, wrist, and hand badly involved. The hand was swollen so much she could not close it. In fact, every joint and muscle in her body was very painful.

I put the patient on the usual treatment without results, until May 2, when I began the Phylacogen treatment, 5 Cc. subcutaneously. She exhibited the expected reactions, the temperature reaching 102°, followed a few hours afterward by some relief from the symptoms. On the 3d I gave 5 Cc. subcutaneously with slight reaction only. That night the woman slept all night, for the first time in nine years.

On May 4 I gave 10 Cc. subcutaneously, followed by the typical reactions—chill and elevation of temperature. The same dose on May 5 produced

*_Therapeutic Notes_, November, 1912, p. 114.
†_Therapeutic Notes_, November, 1912, p. 122.

a slight reaction only with subsidence of all rheumatic symptoms. The body was sore all over, but she complained of no pain. On the 6th I gave no treatment. On the 7th, 8th, and 9th I gave 10 Cc. each day. There was no return of the pain. The patient eats well and sleeps well and walks with ease, whereas for the past nine years she has had great difficulty in walking at all.

PHYLACOGEN IN A CASE OF RHEUMATISM AND ASTHMA.*

By F. Herbert Gile, M.D., Braintree, Mass.

Mrs. A. T. G., aged 56. Suffered from asthma of severe type for 12 years. Had been preceded by hay fever. No relief, not even from morphine, except by removal to seashore. Articular rheumatism of mild severity for six years.

Treatment: Six injections of only 20 minims each of Rheumatism Phylacogen were given on alternate days. Reaction appeared, slight fever and chills for a few hours, continuous headache, very profuse bronchorrhea; malaise. Both rheumatism and asthma were gone absolutely after second injection.

This dosage is very small compared with the manufacturer's recommendations. In other cases of rheumatism, using this treatment, I have obtained better results from the smaller doses.

I treated one case of rheumatism with the 10-Cc. doses and each injection only aggravated the trouble. A short cessation of treatment followed by smaller doses produced the desired results.

A CASE TREATED WITH RHEUMATISM PHYLACOGEN.†

By F. J. Fralick, M.D., Greenville, Mich.

Patient, 35 years of age, mother of seven children, had rheumatism about eight months, during which time she was treated with salicylates, iodides, etc. The ankle joints were much swollen, muscular pains were throughout the body, and the patient was unable to walk.

I gave salines every day for about a week, then injected 10 Cc. Rheumatism Phylacogen subcutaneously. This dose was given two days in succession, then omitted for one day, after which an injection of 10 Cc. was given every second day for six doses.

The pain in muscles and joints subsided after the third injection was given.

Four months have now elapsed since this patient was discharged and she has not had rheumatic pains.

I have had many similar cases in which I have obtained equally satisfactory results.

I have found that in older people suffering from various forms of rheumatism that have been with them for years, and in cases complicated with indigestion, hyperacidity of the stomach, constipation, etc., it is much more difficult to get as satisfactory results.

I use a 10-Cc. glass barrel hypodermic syringe that can be sterilized, and make the injection under the skin of the thigh, buttock, abdomen, or any place where the skin can be raised above the muscle and away from joints. The reaction obtained from two to five hours after the injection is quite severe at times, but not always.

Medical World, December, 1912, p. 533.

†*Medical Summary,* December, 1912, p. 317.

MIXED INFECTION VACCINE IN THE TREATMENT OF MYALGIA AND ARTHRITIS.*

By R. E. Brenneman, A.M., M.D., Pittsburg, Pa.
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I wish to emphasize the desirability of a correct differentiation of the causes and seat of bodily pains—in other words, of making a correct diagnosis. For instance, a muscular pain should be called myalgia. To determine its location, such terms as pleurodynia, cephalodynia, torticollis, or lumbago may be used. If a joint is affected, arthritis is the term. If confined to the synovial membrane, the term synovitis is sufficient, with a prefix to designate the cause, just as in arthritis, *e. g.*, tuberculous, gonorrheal, either acute, subacute, or chronic.

As to the treatment, there is no dispute as to the value of eliminative treatment; every organ should be made to do its duty, and that thoroughly. As to diet, common sense should rule. If a certain food cannot be digested well it should be eliminated.

With specifics for other diseases, we naturally look for a specific to combat this universal disease rheumatism. The time seems ripe for a new therapy.

Consequently, upon the publication of Schafer's theories, the writer was prepared, in a measure at least, to investigate his assertions clinically. That there are many different bacteria concerned in the causation of certain infective diseases is evident. The following cases show the results:

Case 1.—Mrs. D., widow, aged 64 years. Had had pains in her ankle and shinbone and in her sternum and various other joints for the past twenty-five years. She had been treated more or less during this entire period. For nearly one year before entering the hospital she had been under the care of a careful, experienced physician, who had used all the mechanical and electrical, as well as medical, treatments, without much if any success. She entered the hospital, January 4, 1912, for treatment with the Schafer vaccines. The last injection, consisting of 10 Cc. Rheumatism Vaccine, produced a tremendous reaction, her chill lasting about 40 minutes, the temperature going to 105.8° F., the pulse, however, not rising in proportion. Both pulse and temperature soon subsided to normal, and remained so until her discharge from the hospital. Practically every injection had a well marked reaction, a feeling of malaise, nausea, general muscular soreness following, with very little local reaction at the site of injection, which was varied at each dose. Her pain left her after the third or fourth injection, and remained absent during her stay at the hospital. After reaching home, her family physician continued these treatments, giving her about six more treatments, the doses varying from 5 to 9 Cc. The reaction, however, after the last few doses, was not so marked as after the first treatments. The pain did not return for six or eight weeks after the last dose. It then returned to some extent in her feet and limbs, and about April 1st, after a severe cold, some pain returned in her sternum, but according to her daughter's report this pain was not as bad as it was formerly. She was thoroughly satisfied with the results of treatment while at the hospital, but at present is not disposed to continue the treatment at her home. Undoubtedly,

*New York Medical Journal, November 23, 1912.

one injection a week, for several weeks, would exert the same influence on the pain as the treatment did at the hospital, but her age and the attending reaction after the treatment have influenced her to take no further treatment at present. She was discharged from the hospital January 23, 1912.

Case 2.—Miss D., aged 30 years, daughter of the former patient, entered the hospital at the same time. She had had vague pains in the articulations of her feet and hands, for three or four years, and was desirous of having some radical treatment early in the course of the disease. Her pains, however, did not interfere particularly with her work as a stenographer. She had but seven treatments while in the hospital, menstruation coming on ten days earlier than usual, the vaccine possibly having some influence on this function.

The reactions in this case were not so marked as in the previous one, but were present. Her pains disappeared after the third or fourth treatment. After leaving the hospital, her family physician gave her about four more injections, of from 4 to 5 Cc., at intervals of about four days. One marked effect of the treatment was the clearing up of her skin, her friends remarking on its improved condition, and the clearing up of her complexion. At this date, April 25th, she is troubled but little with pains, her general condition was good, her care and bathing were continuous, her complexion was still clear, and she was well satisfied with the treatment. She was discharged from the hospital January 23, 1912.

Case 3.—Mr. M. T., aged 54 years, admitted to the hospital, January 12, 1912, for double herniotomy. About ten days after the operation an acute arthritis developed in nearly all his joints, two or three being affected at one time. Phylacogen was administered with the usual reaction, especially in regard to general malaise. The relief from pain was well marked. He was discharged from the hospital February 23, 1912, well. May 10th, still well.

Case 4.—Mr. W., aged 30 years, was admitted to the hospital, February 10, 1912, with a fracture of the right tibia. A right pleurodynia developed about ten days after. Sodium salicylate was administered, with some relief of symptoms. Four or five days later a myalgia of the left leg developed. On the 19th, Rheumatism Phylacogen was administered subcutaneously. Treatment was continued, his pains soon left him, and he was discharged well, April 3d.

Case 5.—Mr. J. G., admitted to the hospital, March 3, 1912, suffering from a contusion of the right knee and bruise of the right tibia. About one week later an acute myalgia of the left leg developed, and Rheumatism Phylacogen was given in the usual doses. His pains soon left, and he was discharged well, April 27, 1912.

The last two cases were somewhat similar, and both patients believed that the vaccine treatment had been of decided benefit in relieving their symptoms.

Case 6.—J. P. K., aged 60 years, private case of Dr. J. R. Vincent, reported by permission.

Diagnosis: Chronic arthritis.

As this case was not in the hospital, the temperatures were not taken at regular intervals. The following notations were by Doctor Vincent: Patient presented himself, last March, with pain in big toe, right foot swollen. Eliminative treatment instituted. Right foot improved, but, in June, trouble began in the left ankle and toe. In August, went to Mt. Clemens, six weeks in bed, returning to Pittsburgh, unimproved. This patient went to complete recovery, and was still well. The reactions in this case were not so marked, but the results were exceptionally good. April 22, 1912, patient still well.

Case 7.—N. N., aged 30 years, private case of Doctor Alexander, reported by permission.

Diagnosis: Chronic arthritis.

History: Right knee affected since 1905, and in both knees since 1910. No swelling, marked stiffness in both knees with pain on motion. Had been under routine antirheumatic treatment since 1905, without particular benefit.

Sept. 22, 1911. Rheumatism Phylacogen, 2 Cc.

Six hours after injection had headache, no chill, no rise in temperature, marked local reaction; muscular soreness, redness; slight numbness of arm at and near point of injection. No change in symptoms.

Sept. 23, 1911. Rheumatism Phylacogen, 5 Cc.

Marked local reaction, redness, soreness, numbness, etc.; four hours after injection temperature 101° F., pulse 110, respiration 22. No chill or other symptom of reaction.

Sept. 28, 1911. Rheumatism Phylacogen, 10 Cc.

Slight improvement following last injection, as evidenced by lessened pain in infected joints. No increase in temperature, pulse or respiration.

Oct. 4th. Marked improvement in knee condition. No pain; patient able to walk better than for years. Rheumatism Phylacogen, 10 Cc.

Oct. 8th. Following last injection, patient had no noticeable reaction whatsoever, either local or systemic. Still improving. Ten Cc. Rheumatism Phylacogen.

Oct. 11th. Rheumatism Phylacogen, 10 Cc.

Following this injection, patient had chill, lasting thirteen minutes, with rise of temperature three hours later to 101° F., pulse 100, respiration 22, local reaction marked.

Oct. 16th. Patient entirely free from rheumatic symptoms. Went about her daily work without feeling the least inconvenience.

Case 8.—C. B., aged 36 years, reported by permission of Dr. J. P. Saling.

Diagnosis: Acute arthritis.

History: Had had acute attacks for last ten years at intervals of about nine months. Present attack began December 20, 1911.

Treatment: Regulation rheumatism treatment given until January 12th without relief.

Jan. 12, 1912. Rheumatism Phylacogen, 5 Cc., and Mixed Infection Vaccine, 5 Cc.

Temperature maximum 103° F.; nausea, vomiting, and marked prostration followed this injection. Slight local reaction.

Jan. 14th. Rheumatism Phylacogen, 5 Cc. Schafer's Mixed Infection Phylacogen, 5 Cc.

Projectile vomiting followed the nausea, and then patient had a severe nosebleed. No relief from pain, but pain was exaggerated. Other joints became involved. Prostration so profound that patient refused further treatment.

Jan. 16th. Pain suddenly left on this date without treatment of any kind.

Relapsed on the 20th, lasting one day.

Jan. 21st. Rheumatism Phylacogen, 5 Cc., and Mixed Infection Phylacogen, 5 Cc.

Jan. 23d. Patient in good condition and able to go to work. A little pain.

March 17th. Well. No pain or other symptoms of rheumatism.

April 25th. Patient in good condition.

Case 9.—J. E. J., aged 54 years, reported by permission of Dr. J. P. Saling.

Diagnosis: Sciatic rheumatism.

History: Had one attack sciatic rheumatism twenty years ago, duration seven months. Present attack began in October, 1911, with severe pain between right knee and hip joint. Unable to walk without cane. Potassium iodide treatment caused some relief from constant pain.

January 15, 1912. Mixed Infection Phylacogen five Cc. Reaction pronounced, nausea and vomiting for twenty-four hours. Rise in temperature; following this one injection, pain disappeared. Was able to walk without cane. Improvement marked.

January 27th. Well. No further injections needed. Walked well. Slept well and was able to attend his work, first time since October, 1911.

April 25th. Patient still well.

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